

HIL/LHD/ENV/MoEF/436

Date: 25.11.2023

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

Sub: Compliance Report of EC conditions for Gurdari (584.19 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period April'23 to September'23.

Ref: Environmental Clearance letter no J-11015/136/2006-IA II (M) dated 7th February 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Gurdari (584.19 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period April'23 to September'23.

The lease details are below.

Lease area (ha)	Production Capacity (MT)	Lease Period
584.19	325000	23.03.1985 to 22.03.2035

Hope you will find the same in order.

Thanking You

Yours Sincerely FOR HINDALCO INDUSTRIES LIMITED

(Basudev Gangopadhyay)

AVP (Planning, Environment & Compliance)

Enclosure: - As Above

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

Name of the Project : Gurdari Bauxite Mine (584.19 ha)

M/s Hindalco Industries Ltd

Environment Clearance No & date

: J-11015/136/2006-IA.II (M), dated 07.02.2007.

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

A. Specific Conditions

Condition 1- All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.

Reply to Condition 1 - Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid up to 31.03.2024. Productions of bauxite are within limits specified in consent to operate.

Condition 2- The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.

Reply to Condition 2- Land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement has been made with raiyat (Landowner) after permission of the State Govt with provision of returning the land as per norms set by D.C. The compensation and facilities are being provided as per norms set in the agreement. Thus, land acquisition has the approval of the State Government.

Condition 3- The exploration shall be completed within 2.5 years and thereafter the proponent shall come up with a firm proposal for mining, based on the estimated reserves. The reclamation plan, post mine land use and progressive greenbelt development plan shall also be prepared and submitted with the revised proposal.

Reply to Condition 3- Mining is in progress. Required exploration is already done. Reserve and resource estimated on basis of explored bore holes in area. Revised reclamation plan, post mine land use, green belt development plan submitted and approved by IBM. Review of Mining Plan along with progressive mine closure plan (current mining scheme/mining plan) is valid up to 31.03.2024.

Condition 4- Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.

Reply to Condition 4- Shallow depth mining is being carried out up to maximum depth of 20.00 mts. Hence there will be no intersecting of the ground water table due to mining activities. In future also, working zones will be restricted to above ground water tables. We undertake that no mining is/was carried out below ground water table and the same status will be maintain in future also.

Condition 5- Topsoil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.

Reply to Condition 5- Topsoil is being stacked temporally properly with proper slope as and when required. Sequential backfilling and reclamation of mined out area are being exercised for which topsoil is being spread on backfilled area for reclamation of area.

Condition 6- The waste generated shall be concurrently backfilled in the mined-out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on a six-month basis.

Reply to Condition 6- Overburden and waste rock are being used for back filling. Data pertaining to backfilling is enclosed as **Annexure 4.**

Monitoring and management of rehabilitated areas is being done through effective supervision. No external dump exists as on date.

Condition 7- Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.

Garland drains (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

Reply to Condition 7- No run-off is generated from mining activities. However, 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. Sump of adequate capacity is being provided and maintained as required.



Garland drain around mine pit.



Catch drain Near mine pit.

Condition 8- Plantation shall be raised in an area of 78.44 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc.

in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.

Reply to Condition 8- Progressive plantation is being carried out on regular basis with progress of mining activity in order to create a green belt of adequate width around the ML area.

During FY 2022-23, a total of 6000 nos. saplings were planted on reclaimed area. A total of 20.99 ha areas have been planted till date. In addition to this agricultural activity is going on reclaimed land as per the consent from the landowners. Rest to be complied during project period.



Plantation and Agriculture on Reclaimed land

Condition 9- The project authority should implement suitable conservation measures to augment ground water resources in area in consultation with Regional Director, Central Ground Water Board.

Reply to Condition 9- Suitable conservation measures to augment ground water have been taken as directed in NOC granted by CGWB e.g., Constructing water harvesting pond etc.



Rainwater Harvesting Pond.

Condition 10- Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.

Reply to Condition 10- The mining operation is not intersecting ground water table.

We are not using ground water for any mining purpose. A piezometer has been installed for monitoring ground water level. Water quality and water level report are attached herewith as **Annexure 1.**



Piezometer Installed at Mines

Condition 11- Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.

Reply to Condition 11- Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation.

We are not using any water from natural streams/ ground water for mining. We have already obtained NOC for extraction of ground water from CGWB.





Rainwater Harvesting Pond at mines.

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NOC From CGWB for Ground water Extraction

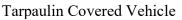
Condition 12- Water monitoring both for quality and quantity shall be carried out at four locations namely one spring and three streams. Six monthly report should be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubaneshwar.

Reply to Condition 12- Spring and Stream water are being monitored. Analysis report is attached as **Annexure 2**. Now the Regional office is at Ranchi.

Condition 13- Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of minerals. The vehicles should be covered with a tarpaulin and shall not be overloaded.

Reply to Condition 13- To keep vehicular emissions under control, company vehicles are periodically checked and repaired. The vehicles are being covered with tarpaulin while transportation of mineral.







PUC Certificate

Condition 14- Drills should either be operated with dust extractors or should be equipped with a water injection system.

Reply to Condition 14- Wet drilling is in practice.



Wet drilling is being carried out.

Condition 15- Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.

Reply to Condition 15- Blasting time is fixed during Lunch Time i.e. 1.00 PM-2.00 PM. We have control blasting permission. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. Efforts and mitigative measures are being taken to mitigate the impact of the blast.

Condition 16- Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.

Reply to Condition 16- There is no proposal for enhancement of production.

Condition 17- Sewage treatment plant should be installed for the colony. ETP should also be provided for workshops and wastewater generated from mining operations.

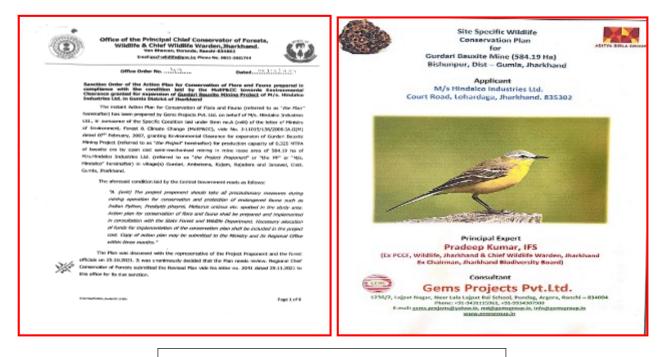
Reply to Condition 17- There is an Effluent treatment mechanism (Oil-grease trap) are available, the used oil in workshop being collected and stored in earmarked area and is being disposed through authorized vendor.

The sewage water from domestic uses is being collected through individual Septic Tank and Soak Pits.

Condition 18- The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, <u>Presbytis phayrei</u>, <u>Melsurus ursinus</u> etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. The necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of the action plan may be submitted to the Ministry and its Regional Office within 3 months.

Reply to Condition 18- We have prepared Wildlife Conservation Plan in consultation with State Forest Department and also obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand for conservation and protection of flora and fauna in the core and buffer zone for Gurdari Bauxite Mines.

Approval letter (Memo No 1862, dated 02.12.2021) has been submitted to your good office on 21.02.2022.



Site specific WLCP For Gurdari Bauxite Mines

Condition 19- A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.

Reply to Condition 19- Progressive mine closure plan along with mining scheme has been approved by IBM. The final Mine Closure plan (part) has been approved by IBM. The final Mine closure plan for balance area will be prepared in due time as per applicable guideline and timelines

mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

B. General Conditions

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

Reply to Condition 1- Noted

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

Reply to Condition 2- Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme / mining plan.

Report is attached as **Annexure 4.**

Condition 3- Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board

Reply to Condition 3- We have already established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Report is attached as **Annexure 2.**

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

Reply to Condition 4- Being done. Monitoring Reports for the reporting period are enclosed in **Annexure-2**. Now the Regional office is at Ranchi.

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

Reply to Condition 5- Three nos. of water tanker have been provided for sprinkling of water on haul roads and active mining areas to arrest fugitive dust. Water spraying at loading, unloading, etc is also being done properly.



Water Tanker for dust suppression

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

Reply to Condition 6- Noise monitoring is being done regularly. Workers engaged in the operation of HEMMs, etc., have also been provided with PPEs such as ear plugs and earmuffs. Monitoring of noise level is being conducted at various locations of the work zone area. Report is attached as **Annexure 2**

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

Reply to Condition 7- There is no effluent discharge from Mine. We are not discharging any wastewater outside the mine lease area. Oil and grease trap has been installed at workshop in mine lease area.



Washing Ramp with Oil and Grease trap

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

Reply to Condition 8- Complied. Use of Personal Protective Equipment (PPE) by individuals is being ensured. All mine workers are being regularly and periodically sent to our own hospital for health checkup/ Occupational Health checkup for any contraction of diseases due to exposure in dusty and noisy areas. Training on safety, health and environmental aspects of mining is being regularly imparted through VT training Centre and also through various other training programs conducted by the State Government, recognized agencies, etc.

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

Reply to Condition 9- Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as **Annexure 3.**

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

Reply to Condition 10- This is an operating mine and hence provision related to financial closure is not applicable. Now the Regional office is at Ranchi.

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

Reply to Condition 11- Statement of actual expenses for the month Apr'23 to Sep'23 for environmental protection measure is enclosed as **Annexure 5**. Now the Regional office is at Ranchi.

Condition 12- The Regional Office of this Ministry located at Bhubaneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

Reply to Condition 12- Agreed.

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

Reply to Condition 13- Complied. Copy submitted to regional office.

Condition 14- State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.

Reply to Condition 14- Displayed.

Condition 15- The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneshwar.

Reply to Condition 15- Complied. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office Vide letter no HIL/GMO(M)/ENV/140 Dated 23.04.2007. Now the Regional office is at Ranchi.

Name of the Project : Gurdari Bauxite Mine (584.19 ha)

M/s Hindalco Industries Ltd

Environment Clearance No & date

: J-11015/136/2006-IA.II (M), dated 07.02.2007.

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

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Garland drain around mine pit.



Catch drain Near mine pit.

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Plantation and Agriculture on Reclaimed land

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Rainwater Harvesting Pond.

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We are not using ground water for any mining purpose. A piezometer has been installed for monitoring ground water level. Water quality and water level report are attached herewith as **Annexure 1.**



Piezometer Installed at Mines

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Rainwater Harvesting Pond at mines.

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NOC From CGWB for Ground water Extraction

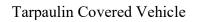
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Reply to Condition 14- Wet drilling is in practice.



Wet drilling is being carried out.

Condition 15- Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.

Reply to Condition 15- Blasting time is fixed during Lunch Time i.e. 1.00 PM-2.00 PM. We have control blasting permission. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. Efforts and mitigative measures are being taken to mitigate the impact of the blast.

Condition 16- Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.

Reply to Condition 16- There is no proposal for enhancement of production.

Condition 17- Sewage treatment plant should be installed for the colony. ETP should also be provided for workshops and wastewater generated from mining operations.

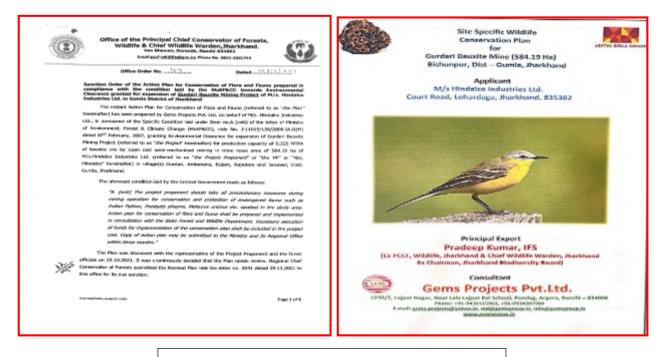
Reply to Condition 17- There is an Effluent treatment mechanism (Oil-grease trap) are available, the used oil in workshop being collected and stored in earmarked area and is being disposed through authorized vendor.

The sewage water from domestic uses is being collected through individual Septic Tank and Soak Pits.

Condition 18- The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, <u>Presbytis phayrei</u>, <u>Melsurus ursinus</u> etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. The necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of the action plan may be submitted to the Ministry and its Regional Office within 3 months.

Reply to Condition 18- We have prepared Wildlife Conservation Plan in consultation with State Forest Department and also obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand for conservation and protection of flora and fauna in the core and buffer zone for Gurdari Bauxite Mines.

Approval letter (Memo No 1862, dated 02.12.2021) has been submitted to your good office on 21.02.2022.



Site specific WLCP For Gurdari Bauxite Mines

Condition 19- A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.

Reply to Condition 19- Progressive mine closure plan along with mining scheme has been approved by IBM. The final Mine Closure plan (part) has been approved by IBM. The final Mine closure plan for balance area will be prepared in due time as per applicable guideline and timelines

mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

B. General Conditions

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

Reply to Condition 1- Noted

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

Reply to Condition 2- Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme / mining plan.

Report is attached as **Annexure 4.**

Condition 3- Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board

Reply to Condition 3- We have already established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring is being carried out and reported to the concerned authorities. Report is attached as **Annexure 2.**

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

Reply to Condition 4- Being done. Monitoring Reports for the reporting period are enclosed in **Annexure-2**. Now the Regional office is at Ranchi.

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

Reply to Condition 5- Three nos. of water tanker have been provided for sprinkling of water on haul roads and active mining areas to arrest fugitive dust. Water spraying at loading, unloading, etc is also being done properly.



Water Tanker for dust suppression

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

Reply to Condition 6- Noise monitoring is being done regularly. Workers engaged in the operation of HEMMs, etc., have also been provided with PPEs such as ear plugs and earmuffs. Monitoring of noise level is being conducted at various locations of the work zone area. Report is attached as **Annexure 2**

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

Reply to Condition 7- There is no effluent discharge from Mine. We are not discharging any wastewater outside the mine lease area. Oil and grease trap has been installed at workshop in mine lease area.



Washing Ramp with Oil and Grease trap

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

Reply to Condition 8- Complied. Use of Personal Protective Equipment (PPE) by individuals is being ensured. All mine workers are being regularly and periodically sent to our own hospital for health checkup/ Occupational Health checkup for any contraction of diseases due to exposure in dusty and noisy areas. Training on safety, health and environmental aspects of mining is being regularly imparted through VT training Centre and also through various other training programs conducted by the State Government, recognized agencies, etc.

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

Reply to Condition 9- Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as **Annexure 3.**

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

Reply to Condition 10- This is an operating mine and hence provision related to financial closure is not applicable. Now the Regional office is at Ranchi.

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

Reply to Condition 11- Statement of actual expenses for the month Apr'23 to Sep'23 for environmental protection measure is enclosed as **Annexure 5**. Now the Regional office is at Ranchi.

Condition 12- The Regional Office of this Ministry located at Bhubaneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

Reply to Condition 12- Agreed.

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

Reply to Condition 13- Complied. Copy submitted to regional office.

Condition 14- State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.

Reply to Condition 14- Displayed.

Condition 15- The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubaneshwar.

Reply to Condition 15- Complied. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office Vide letter no HIL/GMO(M)/ENV/140 Dated 23.04.2007. Now the Regional office is at Ranchi.

	Annexure 1								
Piezomo	Piezometer Reading - Gurdari Bauxite Mine								
S No	Month	Depth (meter)							
1	Apr-23	32.15							
2	May-23	32.53							
3	Jun-23	32.82							
4	Jul-23	32.77							
5	Aug-23	32.96							
6	Sep-23	32.28							

ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Gurdari Bauxite Mine-Environmental Monitoring Report

April 2023



CONTENT

Hind	dalco Industries : Gurdari Bauxite Mine Environmental M	onitoring Report April 2023
	Gurdari Bauxite Mine	
	AMBIENT AIR QUALITY- CORE ZONE	
1	Entrance Gate / Near Mine Office	
2	Near Kathuwapani Pit-23	
3	Near Mine Weigh Bridge	
4	Near Ambakana Pit / NKCPL Camp	
	AMBIENT AIR QUALITY-BUFFER ZONE	
1	Near Pakri Gada Village	
2	Near Pol Pol Village	
3	Near Shakhuapani Village	
4	Near Dipa Kujam Village	





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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/RNC/2023/1960	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000000921F			

CUSTOMER DET	AILS	SAMPLE DETAILS			
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1387 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.04.2023 to 11.04.2023 : 10.05.2023		
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02		
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved		

M	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear
5	Longitude	±84°14'43.25"N	6	Latitude	: 23°19'0.21"E

Discipline :	Chemical	Group :	Atmospheri	c 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/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	15.7	80 (24hrs)
Ozone (O ₅)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Rumar Si

Pin D. Environmental Engg

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ENGINEERING SERVICES PVT. LTD.

Email: Info@elespl.co.in , eles.ranchi@amail.com

Phone na.: 0651-2290103 Website: www.elespl.co.in

TEST REPORT

Test Report No.	; ELES/RNC/2023/1960	Report Release Date	: 12,06,2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS			
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/1387 Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.04.2023 to 11.04.2023 / 10.05.2023		
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02		
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved		

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	- 4	Weather Condition	Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0,21"E

Discipline	: Chemical	Group	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	µg/m²	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m ¹	IS:5182 (Part-12): 2004;RA2019	<0.5	Ol(Annial)		

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



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

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Email: info@elespl.co.in , eles.ranchi@gmail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/1961	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000000922F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1388 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.04.2023 to 11.04.2023 : 10.05.2023
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 10.05.2023 to 08.06,2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			-7.4
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline :	Chemical	Group ;	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23); 2006; RA2022	65	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m ³	IS 5182 (Part- 24); 2019	32	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	15.5	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1,0	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.009	1 (24hrs)		
Nickel (NI)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	2.1	06 (Annual)		



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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ronchi@amail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/1961	Report Release Date	: 12,06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1388
		Location	: Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.04.2023 to 11.04.2023 : 10.05.2023
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	mg/m³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)	

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



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Dr. Deependra Kuman Sinha

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

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Email: info@elespl.co.in, eles.ranchi@amail.com

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



TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2023/1962	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000000923F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1389 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.04.2023 to 11.04.2023 : 10.05.2023
Plant Status	; Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	; Sealed & Preserved

MI	TEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 35	2	Barometric Pressure (mm	Hg) : 743	
3	Relative Humidity (%) : 62	4	Weather Condition	: Clear	

NABL Accredited						
Discipline :	Chemical	Group	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part-23): 2006; RA2022	74	100 (24hrs)		
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	36	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2): 2001; RA2022	8.8	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)		
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs).		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.019	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		



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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE9713D1Z4

NOINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.ln

TEST REPORT

Test Report No.	: ELES/RNC/2023/1962	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1389	
		Location	: Near Mine Weigh Bridge	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	Gurdari Bauxite Mine (584.19ha : 10.04.2023 to 11.04.2023	
		Sample Received Date Type of Sample	10.05,2023 Ambient Air	
Plant Status	; Operational	Sample Drawn By	: ELES/DOC/SMPL/02	
Period of Analysis	±10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 35	2	Barometric Pressure (mm)	Hg) : 743	
3	Relative Humidity (%) : 62	.4.	Weather Condition	:: Clear	

Discipline	: Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	μg/m³	1S:5182 (part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	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 Simili Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page I of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20/AAECE9713D1Z4

Email: Info@elespl.co.in) eles.ranchi@amail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/1963	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000000924F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1390 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584,19ha)	
Address Plant Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sample Drawn By	: 10.04.2023 to 11.04.2023 : 10.05.2023 : Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline :	Atmospheri	e Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	17.9	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	μg/m²	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m²	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Deependra Kumar

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) 65T NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in . eles,ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/1963	Report Release Date	: 12,06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1390 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584.19ha)		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 10.04.2023 to 11.04.2023 : 10.05:2023 : Ambient Air		
Plant Status	: Operational	Sample Drawn By	: ELES/DOC/SMPL/02		
Period of Analysis	= 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved		

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	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 Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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PLOT NO-30. MANSAROVAR ENCLAVE, TUPUDANA NATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D120

ENGINEERING SERVICES PAT. LTD

Email: info@elespt.co.in , eles ranchi@gmall.com

Phone no.: 0651-2290103 Website: www.elespi.ca.in



TEST REPORT

Test Report No.	: ELES/RNC/2023/1964	Report Release Date	: 12,06.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000000925F		

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1391 : Near Pakri Gada Village		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 11.04.2023 to 12.04.2023 : 10.05.2023		
Plant Status	- Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02		
Period of Analysis	= 10.05.2023 to 08.06,2023	Sample Condition	; Sealed & Preserved		

MI	METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	:30	2	Barometric Pressure (mmHg)	: 743	
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear	
5	Longitude	: 84°14'52,25"N	6	Latitude	: 23°17'41,21"E	

Discipline ;	Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	15.5	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m²	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	TS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0,002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



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Authorized Signatory Dr. Deependra Kumar Sinha

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

MGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@amail.com

Phone na.: 0651-2290103 Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/1964	Report Release Date	: 12.06,2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1391 : Near Pakri Gada Village	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 11.04,2023 to 12,04,2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.05.2023 to 08.06,2023	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	1.743
3	Relative Humidity (%)	: 62	4	Weather Condition	; Clear
5	Longitude	: 84°14'52.25"N	6	Latitode	; 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m ³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)		

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



****End of Report****

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

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECES713D124



Emuil: Info@elespl.co.in., eles.ranchi@gmail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/1965	Report Release Date	: 12,06,2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000000926F			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/1392 : Near Pol Pol Village : 11.04.2023 to 12.04.2023	
Plant Status	: Operational	Sample Received Date Type of Sample Sample Drawn By	: 10.05.2023 : Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION	7.5		
1	Average Temperature (°C) : 30	2	Barometric Pressure (mmH	g) : 743
3	Relative Humidity (%) : 62	The same of the sa	Weather Condition	: Clear

Discipline :	Discipline : Chemical Group				
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	34	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	15.2	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	<0,002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	



****End of Report****

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

Page 1 of 1

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

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.ca.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	; ELES/RNC/2023/1965	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	; Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1392 : Near Pol Pol Village	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 11.04.2023 to 12.04.2023 : 10.05.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
	Average Temperature (°C) : 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%) : 62	4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)		

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



****End of Report****

Dr. Deependra Kumer Smil.

Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

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PLOT NO-30. MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 [JHARKHAND] GST NO:- 20AAECEST13D124



Email: Info@elespl.co.in , eles.ranchi@amail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/1966	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000000927F			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Re£ No. Location Sampling Date Sample Received Date	: ELES/RNC/2023/AA/1393 : Near Shakhuapani Village : 11.04.2023 to 12.04.2023 : 10.05.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved	

Ť	Average Temperature (°C)		2	Barometric Pressure (mmHg)	- 742	
_	Relative Humidity (%)	: 62		Weather Condition	: Clear	_

Discipline :	Chemical	Groun	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.7	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)
Ozone (O ₃)	μg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μ <u>μ</u> /m³	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/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Amual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Sinher

Or. Deependra Signatory
Ph. D. Environmental Engg.
ELES Pyt. Ltd. Technical Manager.

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: Info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/1966	Report Release Date	: 12,06.2023	
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1393 : Near Shakhuapani Village	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 11.04.2023 to 12.04.2023 : 10.05.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	= 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	1S: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

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO: 20AAECE97130124

Email: infa@elespl.co.in , eles.conchi@gmall.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/1967	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000000928F			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1394 ! Near Dipa Kujam Village	
Address	Lohardaga, Jhurkhand-835302	Sampling Date Sample Received Date	: 11.04.2023 to 12.04.2023 : 10.05.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Scaled & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 30	2	Barometric Pressure (mmHg)	743
3	Relative Humidity (%)	: 62		Weather Condition	; Clear

Discipline :	Chemical	Group	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	15.6	80 (24hrs)
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	15 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorized Signatory

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

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATVA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D174

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone nn.: 0651-2290103 Website: www.elespi.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/1967	Report Release Date	: 12.06.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1394 : Near Dipa Kujam Village	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 11.04.2023 to 12.04.2023 : 10.05.2023	
Plant Status	7 Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	= 10.05,2023 to 08.06.2023	Sample Condition	: Sealed & Preserved	

ME	TEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 30	2	Barometric Pressure (mm	Hg) : 743	
3	Relative Humidity (%) : 62	-4	Weather Condition	: Clear	

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	μg/m³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)	

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



****End of Report****

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

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (JHARKHAND) 63T NO:-28AAECE9713D124

ENGINEERING SERVICES PVT, LTD.

Email: Info@elespl.co.in , eles.ranchi@amail.com

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

TEST REPORT

Test Report No.	: ELES/RAN/2023/0493	Report Release Date	: 06.05.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RAN/2023/DW/0378 : 05.04.2023 : 26.04.2023	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source/Location of Sample	: Drinking Water : Gurdari Bauxite Mines (584,19ha)	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pyt. Ltd.	
Period of Analysis	: 26.04.2023 to 05.05.2023	Sample Condition	: Sealed & Preserved	

Discipline : Chem	ical	Group : Wate	ė .		ory Limit
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 25.1 °C)	8.7	APHA 23 rd Ed.2017, 4500-H	7.24	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 [™] Ed.2017, 2130 B	0.24	1.0	5.0
Taste	14	APHA 23rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	9	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	528	500	2000
Chloride (as Cl)	mg/L	APHA 23rd Ed.2017, 4500 CI B	138	250	1000
Fluoride (as F)	mg/L	APHA 23 ⁶⁵ 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	162	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed.2017, 2340 C	196	200	600
Sulphate (as SO ₄)	mg/L	APHA 23 rd Ed.2017, 4500 SO ₄ -3-E	32.8	200	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	5.64	45	No Relaxation
Phenolic Compound (as C ₆ H ₃ OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-B34003 (JHARKHANO) GST NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No. : ELES/RAN/2023/0493 Report Release Date : 06.05.2023

Work Order No. : 13612310218 Work Order Date : 21.04.2023

Discipl	ine : Che	mical Group: V	Vater		tory Limit
	_		1	Acceptable	Permissible
Parameter	Unit	Test Protocol	Result	Limit	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	46.4	75	200
Discipl	ine: Che	mical 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	1S 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 23rd Ed.2017, 3111B	BDL. (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 23rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23rd Ed.2017, 3111B	0.218	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: 1, pH & RFC done at Lab,

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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.elespi.co.in

TEST REPORT

 Test Report No.
 : ELES/RAN/2023/0493
 Report Release Date
 : 06.05.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline : Che	mical		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	АРНА	BDL (DL: 0.01)	0.03
Alpha HCH*	μg/L	АРНА	BDL (DL: 0.001)	0.01
Beta HCH*	μg/L	APHA	BDL, (DL: 0.01)	0.04
Butachlor*	μg/L	АРНА	BDL (DL: 10)	125
Chlorpyriphos*	µg/L	АРНА	BDL (DL: 10)	30
Delta HCH*	μg/L	АРНА	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	АРНА	BDL (DL: 0,5)	1
Endosulfan (alpha, beta, and sulphate)*	μg/L	АРНА	BDL (DL: 0.1)	0.4
Ethion*	μg/L	АРНА	BDL (DL: 0.5)	3
Gamma HCH (Lindane)*	μg/L	АРНА	BDL (DL: 0.5)	2
Isoproturon*	µg/L	APHA	BDL (DL: 0.5)	9

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, HANCHI-834003 (IHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PUT, LTD.

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

Website: www.elespi.co.in

TEST REPORT

Test Report No.	: ELES/RAN/2023/0493	Report Release Date	: 06.05.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : B	iological	Group:	Water		ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	CD 11	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Shall not be detecte	
Discipline :	Chemical	Group :	Water		ory Limit 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	0.1
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 23rd Edition	BDL (DL: 0.0005)	0.0005	No relaxation

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

Reviewed

****End of Report****

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

Page 4 of 4

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Gurdari Bauxite Mine-Environmental Monitoring Report

May 2023



CONTENT

Hind	alco Industries : Gurdari Bauxite Mine	Environmental Monitoring Report	May 2023
	Gur	dari Bauxite Mine	
	AMBIENT AIR QUALITY- CORE ZO	NE	
1	Entrance Gate / Near Mine Office	1000	
2	Near Kathuwapani Pit-23		
3	Near Mine Weigh Bridge		
4	Near Ambakana Pit / NKCPL Camp		
	AMBIENT AIR QUALITY- BUFFER 7	CONE	
1	Near Pakri Gada Village	, , , , , , , , , , , , , , , , , , , ,	
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		





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



Emall: info@elespl.co.in , eles.ranchi@amall.com

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



TC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2023/2291	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001213F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1764 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	= 07.05.2023 to 08.05.2023 = 06.06.2023
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0,21"E

NABL Accredited						
Discipline :	Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	24	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	13.1	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m³	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/m³	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m)	ELES/AIR/SOP/01	<2.0	06 (Annual)		



****End of Report***

Dr. Dentherized-Signatory Sinha

Page 1 of 1

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Emall: Info@elespl.co.in , eles.ranchi@gmail.com Phone no.: 0651-2290103

Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/2291	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1764 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	£07.05,2023 to 08.05.2023 : 06.06,2023
Plant Status	: Operational	Type of Sample Sample Drawn By	Ambient Air ELES/DOC/SMPL/02
Period of Analysis	: 10.05.2023 to 08.06.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	EMATION			
1	Average Temperature (°C)	: 34	2.	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	μg/m²	IS:5182 (part-11); 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)	

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



****End of Report****

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Dr. Deependra Kuma/ Sinha Ph. D. Environmentor Emig. ELES Pvt. Ltd. Technicol Manager

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Email: Info@elespl.co.in , eles ranchi@gmail.com

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



TC-8830

TEST REPORT

Test Report No.	: ELES/RNC/2023/2292	Report Release Date	: 01,07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000001214F			

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1765 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 07.05.2023 to 08.05.2023 : 06.06.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: ELES/DOC/SMPL/02	
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION 1 Average Temperature (°C) : 34 2 Barometric Pressure (mmHg) : 743 3 Relative Humidity (%) 59 4 Weather Condition : Clear

Discipline :	Chemical	Group	: Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	13.2	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (Sars)
Ammonia (NH ₃)	μg/m³.	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	2.1	06 (Annual)



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History

Dr. Despender Kumar Sinha

Page 1 of 1 ELES FILL TO TO THE Manag

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Email: Info@elespl.co.in , eles.ranchi@amail.com Phone no.: 0651-2290103

Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/2292	Report Release Date	: 01,07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1765 : Near Kathuwapani Pit-23	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Gurdari Bauxite Mine (584,19ha) : 07.05,2023 to 08.05,2023 : 06.06,2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 34	2	Barometric Pressure (mmH	(g) : 743
3	Relative Humidity (%) : 59		Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	µg/m³	IS:5182 (part-I1): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)	

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



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

Page 1 of 1

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ENGINEERING SERVICES PUT. LTD.

Email: info@elespl.co.in , eles.ranchi@amail.com

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



TC-8835

TEST REPORT

Test Report No.	: ELES/RNC/2023/2293	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001215F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1766 : Near Mine Weigh Bridge	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	Gurdari Bauxite Mine (584.19ha : 07.05.2023 to 08.05,2023	
Plant Status	: Operational	Sample Received Date Type of Sample Sample Drawn By	: 06.06.2023 : Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	; 06.06,2023 to 09.06,2023	Sample Condition	: Sealed & Preserved	

MI	METEOROLOGICAL INFORMATION				
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	. 743
3	Relative Humidity (%)	: 59		Weather Condition	: Clear

Discipline :	Group	: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	69	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m ³	IS 5182 (Part-6); 2006; RA2022	16.5	80 (24hrs)
Ozone (O ₃)	hg/m3	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m²	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m ³	IS 5182 (Part-22): 2004; RA2019	0.019	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2293	Report Release Date	: 01.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1766 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)	
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 07.05.2023 to 08.05.2023 : 06.06.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFORMATION			
1	Average Temperature (°C) 34	2	Barometric Pressure (mm	Hg) : 743
3	Relative Humidity (%) : 59	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	µg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)	

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



****End of Report****

Dr. Deependre Kuntar Sinha Ph. D Environmental Engg. ELES Pvt. Ltd Technical Manager

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ENGINEERING SERVICES PVT. LTD.

Email: info@elesul.co.ln , eles,ranchi@gmail.com

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



TC-8939

TEST REPORT

Test Report No.	: ELES/RNC/2023/2294	Report Release Date	: 01,07.2023
Work Order No.	13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001216F		

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindaleo Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1767 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584,19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 07.05,2023 to 08.05,2023 : 06.06,2023 : Ambient Air	
Plant Status	: Operational	Sample Drawn By	: ELES/DOC/SMPL/02	
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
\$	Average Temperature (°C) : 34	2	Barometric Pressure (mm	ifig) : 743	
ŏ	Relative Humidity (%) : 59	- 4	Weather Condition	: Clear	

Discipline :	Group	oup ; Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2,5)	μg/m³	1S 5182 (Part- 24); 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	14.2	80 (24hrs)
Ozone (O ₃):	µg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26);2020	<6.0	20 (Annual)
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)



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****End of Report****

Page 1 of 1 pulmicu Manager

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

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.ln , eles.ranchl@gmall.com

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

TEST REPORT

Test Report No.	; ELES/RNC/2023/2294	Report Release Date	1 01.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1767 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584-19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 07.05.2023 to 08.05.2023 : 06.06.2023 : Ambient Air	
Plant Status	- Operational	Sample Drawn By	: ELES/DOC/SMPL/02	
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved	

ME	TEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 34	2	Barometric Pressure (mn	nHg) : 743
3	Relative Humidity (%) : 59	- 4	Weather Condition	: Clear

Discipline : Chemical		Group	: Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)

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



****End of Report****

Dr. Deependra Kumar Sinha Ph. D. Environmental Engg. ELES Pol. 1 Table Manager

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARNHAND) GST NO:-20A4ECE97130124

ENGINEERING SERVICES PVI. LTD.

Ernail: infa@ele-spl.co.in , eles.ranchi@gmail.com

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



TC-8639

TEST REPORT

Test Report No.	: ELES/RNC/2023/2295	Report Release Date : 01.07.2023
Work Order No.	: 13612310218	Work Order Date : 21.04.2023
ULR No.	: TC883923000001217F	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	† ELES/RNC/2023/AA/1768 † Near Pakri Gada Village	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	08.05.2023 to 09.05.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	; 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	1.34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	Clear
5	Longitude	: 84°14'52.25"N	- 6	Latitude	: 23°17'41.21"E

Discipline :	: Atmospheri	c Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	13.3	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25); 2018	<10,0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	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/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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Dr. Deependra Kumar Sinha

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-K34003 (IHARKHAND) GST NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2295	Report Release Date :	01.07.2023
Work Order No.	: 13612310218	Work Order Date ::	21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1768 : Near Pakri Gada Village	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	08.05,2023 to 09.05.2023 06.06.2023	
Plant Status	: Operational	Type of Sample Sample Drawn By	Ambient Air ELES/DOC/SMPL/02	
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Scaled & Preserved	

Ml	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 34	2	Barometric Pressure (imm	Hg) = 743
3	Relative Humidity (%) 59	4	Weather Condition	: Clear
5	Longitude : 84"14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	μg/m³	IS:5182 (Part-11); 2006; RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)

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



****End of Report***

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

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ENGINEERING SERVICES PVT. LTD.

Emall: info@elespl.co.in , eles ranchi@gmail.com

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



70-8639

TEST REPORT

Test Report No.	: ELES/RNC/2023/2296	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001218F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1769 : Near Pol Pol Village
Address	: Lohardaga, Jharkhand-835302 Sampling Date Sample Received Date	: 08.05.2023 to 09.05.2023 : 06.06.2023	
Plant Status : Operational		Type of Sample Sample Drawn By	- Ambient Air - ELES/DOC/SMPL/02
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Scaled & Preserved

MI	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 34	2	Barometric Pressure (mm	Hg) 743	
3	Relative Humidity (%) 59		Weather Condition	: Clear	

NABL Accredited	Chamiani	8		n. n
			: Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23); 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2): 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	12.8	80 (24hrs)
Ozone (O ₂)	hg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³.	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	(S 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS-5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



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Engg.

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ENGINEERING SERVICES PVY. 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/RNC/2023/2296	Report Release Date	: 01.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date	: ELES/RNC/2023/AA/1769 Near Pol Pol Village : 08.05,2023 to 09.05,2023 : 06.06.2023	
Plant Status Period of Analysis	: Operational : 06.06.2023 to 09.06.2023	Type of Sample Sample Drawn By Sample Condition	: Ambient Air : ELES/DOC/SMPL/02 : Sealed & Preserved	

MI	TEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 34	2	Barometric Pressure (mm.	Hg) : 743
3	Relative Humidity (%) : 59	-4	Weather Condition	; Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	μg/m²	IS:5182 (Part-J1): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)	

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



****End of Report****

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Dr. Despendra Kumar Sinha
Ph. Di Environmontal Enggi
ELES By. Lie Tachwall Manager

Page 1 of 1

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ENGINEERING SERVICES PUT. LTD.

Email: Info@elespl.co.in , eles.ranchi@gmall.com

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



TC-BISH

TEST REPORT

Test Report No.	: ELES/RNC/2023/2297	Report Release Date	: 01.07.2023
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
ULR No.	: TC883923000001219F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1770 : Near Shakhuapani Village
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.05.2023 to 09.05.2023 : 06.06.2023
Plant Status	; Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 06.06,2023 to 09.06,2023	Sample Condition	: Scaled & Preserved

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	±743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

NABL Accredited				
Discipline :	Chemical	Group	: Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	59	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6,6	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.8	80 (24hrs)
Ozone (O ₃)	μg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Dr. Authorized Signators Sinha

Ph. D. Environmental Engg. ELES PVI. Ltd., Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D174

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/RNC/2023/2297	Report Release Date	: 01.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/1770 : Near Shakhuapani Village : 08.05.2023 to 09.05.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 06.06.2023 : Ambient Air
Plant Status	: Operational	Sample Drawn By	: ELES/DOC/SMPL/02
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline	; Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m ²	IS;5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0,5	01(Annual)		

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



****End of Report****

Dr. Despendes Number Sinha Ph. D. Environmental Engg. ELES Pvi. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130174



Email: Info@elespl.co.in , eles,ranchi@gmail.com

Phone na.: 0651-2290103 Website : www.elespl.co.in



YC-8839

TEST REPORT

Test Report No.	: ELES/RNC/2023/2298	Report Release Date : 01.07,2023
Work Order No.	: 13612310218	Work Order Date : 21.04,2023
ULR No.	: TC883923000001220F	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1771 : Near Dipa Kujam Village
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.05,2023 to 09.05,2023 : 06.06,2023
Plant Status	: Operational	Type of Sample Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	; 06.06,2023 to 09.06.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	:34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear

Discipline :	Chemical	Group	: Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2); 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₁)	μg/m³	IS 5182 (Part-6): 2006; RA2022	13.9	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25), 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m1	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24firs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Khinha

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Fig. 11 E-victory Mal Engg. FLES For Life Teaming Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) 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/RNC/2023/2298	Report Release Date	: 01.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	:: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/1771		
W. Tarana	And the second second	Location Sampling Date	: Near Dipa Kujam Village : 08.05.2023 to 09.05.2023		
Address	Lohardaga, Jharkhand-835302	Sample Received Date	: 06.06.2023		
Plant Status	: Operational	Type of Sample	: Ambient Air		
		Sample Drawn By	: ELES/DOC/SMPL/02		
Period of Analysis	: 06.06.2023 to 09.06.2023	Sample Condition	: Sealed & Preserved		

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 743
3	Relative Humidity (%)	: 59	4	Weather Condition	; Clear

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	µg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	1S:5182 (Part-12): 2004;RA2019	<0,5	01(Annual)		

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



****End of Report****

Authorized Signatory

Dr. Deepandra Kurnar Sinha Ph. D. Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Gurdari Bauxite Mine-Environmental Monitoring Report

June 2023



CONTENT

Hind	alco Industries : Gurdari Bauxite Mine	Environmental MonitoringReport	June 2023
	Gurd	dari Bauxite Mine	
	AMBIENT AIR QUALITY- CORE ZON	E	
1	Entrance Gate / Near Mine Office		
2	Near Kathuwapani Pit-23		
3	Near Mine Weigh Bridge		
4	Near Ambakana Pit / NKCPL Camp		
	AMBIENT AIR QUALITY- BUFFER ZO	ONE	
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		
1	WORKSHOP EFFLUENT ANALYSIS		







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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles ranchi@amail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2759	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
ULR No.	: TC883923000001624F		

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/1939 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 07.06.2023 to 08.06.2023 : 17.06.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	:741
3	Relative Humidity (%)	: 60	4	Weather Condition	; Clear
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

NABL Accredited						
Discipline :	Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m ¹	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/m³	IS 5182 (Part-2): 2001; RA2022	7.2	80 (24hrs)		
Nitrogen Di-Oxide (NO2).	μg/m ⁷	IS 5182 (Part-6): 2006; RA2022	16.8	80 (24hrs)		
Ozone (O ₁)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m ¹	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	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/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)		



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Jr. Deependra Kumar Sinha

Page 1 of 1 Ph. D. Environmental Engg.

Page 1 of 1

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Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone na.: 0651-2290103 Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/2759	Report Release Date	: 29.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1939 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 07.06.2023 to 08.06.2023 : 17.06.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	7.741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
3	Longitude	: 84°14'43,25"N	6	Latitude	: 23°19'0.21"E

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	µg/m ³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m¹	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)		

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

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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2760	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001625F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindaleo Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1940 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	+07.06.2023 to 08.06.2023 > 17.06.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 33	2	Barometric Pressure (mm	Hg) = 741
3	Relative Humidity (%) : 60	-4	Weather Condition	: Clear

NABL Accredited				-
Discipline :	Chemical	Group :	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	68	100 (24hrs)
Particulate Matter (PM2.5)	μg/m ³	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO2)	µg/m³	IS 5182 (Part-6): 2006; RA2022	16.7	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m²	IS-5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ¹	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	15 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m ¹	ELES/AIR/SOP/01	2,1	06 (Amual)



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Email: info@elespl.co.in , eles ranchi@amail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2760	Report Release Date	: 29,07,2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1940 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha	
Address	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: 07.06.2023 to 08.06.2023	
Mines Status				
Period of Analysis	17.06.2023 to 26.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) = 33	2	Barometric Pressure (mm	iHg) .: 741
3	Relative Humidity (%) : 60	-4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution			
Parameter Unit		Test Protocol	Result	Regulatory Limit	
Benzene*	μg/m ²	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)	

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

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

Website: www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2023/2761	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	± 21.04.2023
ULR No.	: TC883923000001626F		

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1941 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 07.06.2023 to 08.06.2023 : 17.06.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 33	2	Barometric Pressure (mm	Hg) : 741
3	Relative Humidity (%) : 60	4	Weather Condition	: Clear

NABL Accredited Discipline: Chemical Group: Atmospheric Pollution						
Parameter Unit		Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	78	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m ³	IS 5182 (Part- 24): 2019	40	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m ³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m ¹	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)		
Ozone (O ₂)	mg/m³	15 5182 (Part-9): 1974: RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₁)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	1S 5182 (Part-22): 2004; RA2019	0.022	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		



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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone no.; 0651-2290103 Website : www.elespi.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/2761	Report Release Date	: 29.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/1941 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 07.06.2023 to 08.06.2023 : 17.06.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 33	2	Barometric Pressure (mm	Hg) : 741
3	Relative Humidity (%) : 60	4	Weather Condition	: Clear

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)		

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

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Jr. Deependra Kumar Sinha
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Email: info@etespl.co.in , eles.ranchi@gmail.com

Phone na.: 0651-2290103 Website: www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2023/2762	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
ULR No.	: TC883923000001627F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/1942 Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(584.19ha) = 07.06.2023 to 08.06.2023 = 17.06.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1:	Average Temperature (°C) = 33	2	Barometric Pressure (mm	Hg) 741
3	Relative Humidity (%) = 60	4	Weather Condition	: Clear

NABL Accredited					
Discipline : Chemical Group : Atmospheric Pollution					
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part-23): 2006; RA2022	67	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	35	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	7.2	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.6	80 (24hrs)	
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	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/m³	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/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sini.
Ph. D. Environmental Engg.

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124 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/RNC/2023/2762	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET.	CUSTOMER DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELFS/RNC/2023/AA/1942 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584.19ba)
Address	; Lohardaga, Jharkhund-835302	Sampling Date Sample Received Date	: 07.06.2023 to 08.06.2023 : 17.06.2023
Mines Status	: Operational	Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 17,06.2023 to 26.06.2023		: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			Car manufacture
1	Average Temperature (°C) : 33	2	Barometric Pressure (mm	Hg) : 741
3	Relative Humidity (%) : 60	-4	Weather Condition	; Clear

Discipline : Chemical Group : Atmospheric Pol				e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Bertzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)

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

Reviewed by

**** End of Report****

Authorized Signatory

Ur. Deependra Kumar Sinha
Ph. D. Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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

ENGINEERING SERVICES PYT, LTD.

Email: Info@elespl.co.in , eles.runchi@gmail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2763	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001628F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample Sampling Procedure	: ELES/RNC/2023/AA/1943 : Near Pakri Gada Village : 07.06.2023 to 08.06.2023 : 17.06.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
eriod of Analysis : 17.06.2023 to 26.06.2023 Sample Condition		Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 33	-2	Barometric Pressure (mmHg)	±741
3	Relative Humidity (%)	: 60	4	Weather Condition	: Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited Discipline:	Discipline : Chemical Group				
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	27	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	17.9	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m [†]	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Ph)	µg/m ³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ⁷	ELES/AIR/SOP/01	<2.0	06 (Annual)	

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Or. Deependra Kumar Sinn.

Ph. D. Environmental Engy.

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ENGINEERING SERVICES PVT. LTD.

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2763	Report Release Date	: 29.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/1943 : Near Pakri Gada Village : 07.06.2023 to 08.06.2023		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: 17.06.2023 : Ambient Air : ELES/DOC/SMPL/02		
Mines Status	Operational		: ELES Pvt. Ltd.		
Period of Analysis 27,06,2023 to 26,06,2023		- Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	RMATION		and the second second	
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mmHg)	±741
3	Relative Humidity (%)	: 60	4	Weather Condition	; Clear
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	µg/m²	15:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)	

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

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

Page 1 of 1

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

Website : www.elespi.co.in

com >

TC-BEAS

TEST REPORT

Test Report No.	; ELES/RNC/2023/2764	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	; 21,04,2023
ULR No.	; TC883923000001629F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	; Hindalco Industries Limited	Sample Ref. No. Location Sampling Date Sample Received Date	: ELES/RNC/2023/AA/1944 : Near Pol Pol Village : 07.06.2023 to 08.06.2023 : 17.06.2023	
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 17.06.2023 to 26.06.2023	- Sample Condition	; Scaled & Freserved	

MI	TEOROLOGICAL INFORMATION			
L	Average Temperature (°C) : 33	2	Barometric Pressure (mmH	g) : 741
3	Relative Humidity (%) : 60	4	Weather Condition	; Clear

NABL Accredited	en and	Comme	Atmosphant	e Poliution
Discipline :	Atmospheri	-		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	61	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6); 2006; RA2022	16.3	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	μg/m³	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



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Dr. Deependra Kumar Sinha

Page 1 of 1 Ph. D. Environmental Engy

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2764	Report Release Date	: 29.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/1944 : Near Pol Pol Village : 07.06,2023 to 08.06.2023
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17,06,2023 Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Condition	- Sealed & Freserved

МІ	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 33	2	Barometric Pressure (mm	Hg) : 741
.3	Relative Humidity (%) : 60	4	Weather Condition	‡ Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m²	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)	

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

Reviewed b

****End of Report****

Authorised Signatory

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

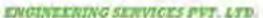
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Email: info@elespi.co.in , eles.ranchi@amail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2765	Report Release Date	: 29.07.2023
Work Order No.	: 13612319218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001630F		

CUSTOMER DETA	ALS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/1945 : Near Shakhuapani Village : 08.06.2023 to 09.06.2023	
Address Mines Status	: Lohardaga, Iharkhand-835302 : Operational	Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: 17,06.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.06.2023 to 26.06.2023	 Sample Condition 	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 33	2	Barometric Pressure (mm	Hg) : 740
3	Relative Humidity (%) # 59	14	Weather Condition	: Clear

NABL Accredited			Atmospheri		
Discipline :	Discipline : Chemical Group				
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	53	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	24	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.8	80 (24hrs)	
Nitrogen Di-Oxide (NO ₃)	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.4	80 (24hrs)	
Ozone (O ₃)	μg/m ¹	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₅)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m²	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	



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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2765	Report Release Date	: 29.07.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: ELES/RNC/2023/AA/1945 : Near Shakhuapani Village : 08.06.2023 to 09.06.2023 : 17.06.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Mines Status	- Operational	- Sample Condition	: Sealed & Preserved
Period of Analysis	= 17.06.2023 to 26.06.2023	Sample Condition	; Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION				
1	Average Temperature (°C)	: 33	2	Barometric Pressure (mm)	Hg) : 740	
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear	

Discipline : Chemical		Group ± Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene ^e	μg/m³	IS:5182 (Part-II): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)	

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

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Email: Info@elespl.co.in , eles.ranchi@gmail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2766	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001631F		

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample Sampling Procedure	: ELES/RNC/2023/AA/1946 : Near Dipa Kujam Village : 08.06.2023 to 09.06.2023 : 17.06.2023 : Ambient Air : ELES/DOC/SMPL/02		
Mines Status	: Operational	Sample Drawn By	ELES Pvt. Ltd.		
Period of Analysis	: 17.06.2023 to 26.06.2023	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) = 33	1 2	Barometric Pressure (mm	Hg) : 740
3	Relative Humidity (%) = 59	4	Weather Condition	Clear

NABL Accredited				
Discipline :	Chemical	Group	Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	52	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	25	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2); 2001; RA2022	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₁)	μg/m³	15 5182 (Part-6): 2006; RA2022	15.3	80 (24hrs)
Ozone (O ₁)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	µg/m³	JS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	< 6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	0б (Annual)



****End of Report****

Authorised Signatory

Jr. Deependra Kumar Smr.

Ph.D. Environmental Engg.

Page 1 of 1 ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

NGINEERING 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/RNC/2023/2766	Report Release Date	: 29.07.2023	
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/1946 : Near Dipa Kujam Village : 08.06.2023 to 09.06.2023	
Address : Löhardaga, Jharkhand-835302		Sample Received Date Type of Sample Sampling Procedure	: 17.06.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	ELES Pvt. Ltd.	
Period of Analysis	: 17.06.2023 to 26.06.2023	- Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	RMATION				
T	Average Temperature (°C)	133	2	Barometric Pressure (mm)	Hg) : 740	
3	Relative Humidity (%)	: 59	4	Weather Condition	: Clear	

Discipline	: Chemical	Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)
Benzo (a) Pyrene*	ng/m ²	IS:5182 (Part-12): 2004;RA2019	<0.5	OI(Annual)

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

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Authorised Signatory

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

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ENGINEERING SERVICES PUT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2757	Report Release Date	: 29.07.2023
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
ULR No.	: TC883923000001622F		

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2023/EF/2228 : 09.06.2023 : 26.06.2023
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample	: Effluent Water Work Shop Effluent - Gurdan Bauxite Mines (584.19 ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd
Period of Analysis	: 26.06.2023 to 12.07.2023	Sample Condition	: Scaled & Preserved

Discipline: Chem	ical	Group: Pollution & Env	ironment	Discharge Lim EPR, 1986 Sc	its - CPCB hedule VI
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land of Irrigation
Sulphide (as S)	mg/L	IS 3025 (Part-29):1986; RA2019	0.45	2.0	
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.538	2.0	-
Dissolved Oxygen (as DO)	mg/L	IS 3025 (Part-38):1989; RA2019	3.4	- 46	4
Discipline: Chem	ical	Group: Resid	dues in Wate	r	
Nickel (as Ni)	mg/L	APHA 23 rd Ed.2017; 3111 B & 3500 Ni.	<0.01	3.0	-
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B & 3500 Mn B	<0.05	2,0	-
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017; 3111 B & 3500 Pb B	<0.01	0.1	·
Mercury (as Hg)	mg/L	IS 3025 (Part-48):1994; RA2019	< 0.001	0.01	-

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Page 1 of I

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Gurdari Bauxite Mine-Environmental Monitoring Report

July 2023



CONTENT

Hind:	alco Industries : Gurdari Bauxite Mine	Environmental Monitoring Report	July 2023
	Gur	dari Bauxite Mine	
	AMBIENT AIR QUALITY- CORE ZO	NE	
1	Entrance Gate / Near Mine Office		
2	Near Kathuwapani Pit-23		
3	Near Mine Weigh Bridge		
4	Near Ambakana Pit / NKCPL Camp	at the same to	
	AMBIENT AIR QUALITY- BUFFER 2	ZONE	
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		





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Email: Info@elesal.co.in ; eles.ranchi@gmail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2898	Report Release Date	.: 08,08,2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000001745F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2440 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.07.2023 to 11.07.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By		
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Condition	: Sealed & Preserved	

M	TEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmH	g) 740
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	= 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

NABL Accredited				
Discipline :	Chemical	Group	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23); 2006; RA2022	54	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	JS 5182 (Part-6): 2006; RA2022	14.2	80 (24hrs)
Ozone (O ₃)	µg/m²	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₄)	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/m³	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)



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Authorised Signatory Dr. Deependra Kumar Sinha

Mr. D. Environmental Engg.

Page 1 of 1 ELES Pvt. Ltd. Technical Manager
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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/RNC/2023/2898	Report Release Date : 08.08.2023
Work Order No.	: 13612310218	Work Order Date : 21.04.2023

CUSTOMER DET.	CUSTOMER DETAILS			
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2440 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584, 19ha)	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date	: 10.07,2023 to 11.07.2023	
Mines Status	- Operational	Type of Sample Sampling Procedure Sample Drawn By		
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	; 27	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'43,25"N	6	Latitude	: 23°19'0.21"E

Discipline : Chemical		Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	µg/m³	IS;5182 (part-11); 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part+12); 2004; RA2019	< 0.5	OI(Annual)		

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

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



Email: info@elespl.co.in , eles.ranchi@gmail.com

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



TEST REPORT

Test Report No.	; ELES/RNC/2023/2899	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	; TC883923000001746F		

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2441 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584,19ha)		
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	= 10.07.2023 to 11.07.2023 = 17.07.2023 = Ambient Air		
Mines Status	Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	17.07.2023 to 24.07.2023	Sample Condition	: Scaled & Preserved		

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature ("C)	: 27	2	Barometric Pressure (mmHg	740
3	Relative Humidity (%)	: 65	- 4	Weather Condition	: Partly Cloudy

NABL Accredited Discipline:	Chemical	Group	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)
Particulate Matter (PM23)	µg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.2	80 (24hrs)
Ozone (O ₃)	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ⁴	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.010	1 (24hrs)
Nickel (Ni)	ng/m ¹	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

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

Page 1 of 1

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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/RNC/2023/2899	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2441 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.07.2023 to 11.07.2023 ; 17.07.2023	
Mines Status	Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	± 17.07.2023 to 24.07.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) :: 27	2	Barometric Pressure (mm	(Hg) : 740
3	Relative Humidity (%) : 65	4	Weather Condition	: Partly Cloudy

Discipline	t Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	µg/m²	IS:5182 (Part-11); 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12); 2004;RA2019	< 0.5	01(Annual)		

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

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****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha

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Page 1 of 1

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ENGINEERING SERVICES PYT. 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/RNC/2023/2900	Report Release Date	: 08.08.2023	
Work Order No.	± 13612310218	Work Order Date	: 21.04.2023	
III.R No.	+TC883923000001747F			

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No Location	: ELES/RNC/2023/AA/2442 Near Mine Weigh Bridge Gurdari Bauxite Mine (584:19ha	
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 10.07.2023 to 11.07.2023 : 17.07.2023 : Ambient Air	
Mines Status	Sampling Pro		ELES/DOC/SMPL/02	
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1.	Average Temperature (°C) : 27	2	Barometric Pressure (mm	Hg) : 740
3	Relative Humidity (%) : 65	4	Weather Condition	: Partly Cloudy

NABL Accredited Discipline:	Chemical	Group :	Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23); 2006; RA2022	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO ₁)	µg/m³	15 5182 (Part-2): 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₁)	µg/m³	IS 5182 (Part-6): 2006; RA2022	15,5	80 (24hrs)
Ozone (O ₃)	μg/m²	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	µg/m ¹	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m ¹	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/m³	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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Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 [JHARKHAND] GST NO:- 26AAECE97130124

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/RNC/2023/2900	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2442 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha)	
Address : Lohardaga, Jharkhand-83530		Sampling Date Sample Received Date	: 10.07.2023 to 11.07.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	± 17.07.2023 to 24.07.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 27	2	Barometric Pressure (mm	Hg) = 740
3	Relative Humidity (%) : 65	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)		

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

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****End of Report****

Authorised Signatory
Dr. Deependra Kumar Sinha
Ph. D. Enwionmental Engg.
ELES Pvi. Ltd. Technical Manager

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PLOT NO-30, MANSARD VAR ENCLAVE, TUPUDANA HATIA, RANCHI-HSADOS (JHARKHAND) GST NO: 20AAECES713D1Z4



Email: Info@elespl.co.ln , eles ranchi@gmail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2901	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	+ TC883923000001748F		

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2443 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584,19ha)
Address	- Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.07.2023 to 11.07.2023 : 17.07.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 17.07,2023 to 24.07,2023	Sample Drawn By Sample Condition	; ELES Pvt. Ltd. ; Sealed & Preserved

M	ETEOROLOGICAL INFORMA	TION			
1	Average Temperature (%C) : 2	7	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (%) : 6	5	4	Weather Condition	: Partly Cloudy

NABL Accredited	Chamiant	Croup :	Atmountant	a Pollution		
Discipline :	1	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	57	100 (24hrs)		
Particulate Matter (PM2.5)	μ <u>u</u> /m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.9	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6); 2006; RA2022	16.2	80 (24hrs)		
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	μg/m ²	1S 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 ²	JS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m ²	ELES/AIR/SOP/01	<2.0	06 (Annual)		



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Dr. Deependra Kumar Sinha

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Page 1 of 1 ELES Pvt. Ltd. Technical Manager

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

ENGINEERING SERVICES PVT, LTD.

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2901	Report Release Date	: 08.08.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	A CONTRACTOR OF THE PARTY OF TH
Customer Name	: Hindalco Industries Limited.	Sample Ref. No. Location	: ELES/RNC/2023/AA/2443 ! Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 10.07.2023 to 11.07,2023 : 17.07.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	:27	2	Barometric Pressure (mmHg)	: 740
3	Relative Humidity (1/6)	: 65	4	Weather Condition	# Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	µg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)		

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

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Dr. Deependra Kumar Sinha Ph. D. Environmente Engg.

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PLUT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI 834003 (JHARKHAND) EST NO:- 20A456597130126



Email: info@elespl.co.in , eles.ranchi@gmail.com

Pliane na.; 0651-2290103 Website : www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2023/2902	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001749F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2444 : Near Pakri Gada Village : 10.07.2023 to 11.07.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17.07.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 17,07,2023 to 24,07,2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (1/6)	: 65	4	Weather Condition	: Partly Cloudy
_	Longitude	; 84°14'52.25"N	6	Latitode	: 23°17'41.21"E

NABL Accredited				4.4		
Discipline :	Chemical	Group	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	25	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m ³	IS 5182 (Part-2): 2001; RA2022	5.2	80 (24ltrs)		
Nitrogen Di-Oxide (NO ₁)	μg/m³	IS 5182 (Part-6): 2006; RA2022	14.5	80 (24hrs)		
Ozone (O ₃)	μ <u>α</u> /m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	ug/m³	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/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24ltrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenie (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		



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Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

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Steen Linviconomina, Salva Fortica



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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/RNC/2023/2902	Report Release Date	: 08.08.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2444 : Near Pakri Gada Village : 10.07.2023 to 11.07.2023	
Address :	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample	: 17.07.2023 : Ambient Air	
Mines Status	Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy.
5	Longitude	: 84"14'52,25"N	6	Latitude	: 23°17'41.21"E

Discipline	: Chemical	Group	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	µg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)		

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

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

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PLOT NO-30, MANSAROVAR ENCLIVE, TUPUDANA HATIA, RANCHI-334003 (JHARKHAND) 657 NO:-20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: Info@elespl.co.in , eles.ranchi@amail.com

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



TEST REPORT

Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
Test Report No.	: ELES/RNC/2023/2903	Report Release Date	: 08.08.2023	

: TC883923000001750F ULR No.

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2445 : Near Pol Pol Village : 10.07.2023 to 11.07.2023		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17.07.2023 Ambient Air : ELES/DOC/SMPL/02		
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.		
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Condition	Sealed & Preserved		

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited			-	
Discipline :	Chemical	Group	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	14.5	80 (24hrs)
Ozone (O ₁)	μg/m³	15 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m³	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 Ph. D. Environmental Engg.

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/2903	Report Release Date	: 08.08.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2445 : Near Pol Pol Village : 10.07.2023 to 11.07.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17.07.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	= 17.07.2023 to 24.07.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 27	2	Barometric Pressure (mm	Hg) : 739
3	Relative Humidity (%) : 65	4	Weather Condition	: Partly Cloudy

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m ¹	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	tig/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)		

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

****En

****End of Report****

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

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-E34003 (JHARKHAND) GST NO:-2004ECE9713D124



Email: Info@elespl.co.in , eles.ranchi@amail.com Phorie na.: 0651-2290103 Website : www.elespl.co.in



TEST REPORT

Test Report No.	; ELES/RNC/2023/2904	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001751F		

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/AA/2446 : Near Shakhuapani Village : 11.07,2023 to 12.07.2023 : 17.07.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By Sample Condition	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 17.07.2023 to 24.07.2023	Charitae Condition	- Deliver de l'Indervou	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 26	2	Barometric Pressure (mmHg)	: 739
3	Relative Humidity (%) : 64	4	Weather Condition	; Partly Cloudy

NABL Accredited	Chaminal	Group	Atmospheri	o Pollation
Discipline :	Unit	Test Protocol	Result	Regulatory Limit
+ H1 F 10 - 10 - 1				
Particulate Matter (PM10)	μg/m ¹	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO ₁)	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.8	80 (24hrs)
Ozone (O ₂)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m³	IS 5182 (Part-25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Enga.

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone na.: 0651-2290103 Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/2904	Report Release Date	: 08.08.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	ELES/RNC/2023/AA/2446 : Near Shakhuapani Village : 11.07.2023 to 12.07.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 17.07.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Collabon	. Sealed of Preserved	

ME	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 26	2	Barometric Pressure (mml	Hg) : 739
3	Relative Humidity (%) : 64	4	Weather Condition	Partly Cloudy

Discipline	: Chemical	Group	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocal	Result	Regulatory Limit		
Benzene*	µg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	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. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAYE, TUPUDANA HATIA, HANCHI-834003 (JHARNHAND) GST NO: 20/AAECE9713D124

ENGINEERING SERVICES PVT. LID.

Email: info@elespl.co.in , eles ranchi@amall.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/2905	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000001752F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2447 : Near Dipa Kujam VIIIage : 11.07.2023 to 12.07,2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure Sample Drawn By Sample Condition	: 17.07.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Mines Status	: Operational		: Sealed & Preserved	
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Condition	- Scaled & Prescived	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) ; 26	2	Barometric Pressure (mm	iHg) : 739
3	Relative Humidity (%) 64	4	Weather Condition	: Partly Cloudy

NABL Accredited Discipline:	Chemical	Group	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part-23): 2006; RA2022	46	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.8	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	1S 5182 (Part-6): 2006; RA2022	13.6	80 (24hrs)
Ozone (O ₃)	µg/m³	IS 5182 (Part-9); 1974; RA2019	<20,0	100 (8hrs)
Ammonia (NH ₁)	µg/m ¹	TS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22); 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m²	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sink

Ph. D. Environmental Engg Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) 65T NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.ca.in , eles.ranchi@gmail.com

Phone na.: 0651-2290103 Website: www.elespi.co.in

TEST REPORT

Test Report No.	; ELES/RNC/2023/2905	Report Release Date	: 08.08.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	; Hindalco Industries Limited ; Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/AA/2447 : Near Dipa Kujam Village : 11.07.2023 to 12.07.2023 : 17.07.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By Sample Condition	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 17.07.2023 to 24.07.2023	Sample Condition	. Sealed & Treserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 26	2	Barometric Pressure (mm	Hg) : 739
	Relative Humidity (%) : 64	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	µg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)	

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

Reviewed by

****End of Report***

Dr. Mutherised Signatory
Ph. D. Environmental Engg.

ELES PVI Ltd. Technical Manager

Page 1 of 1

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Gurdari Bauxite Mine-Environmental Monitoring Report

August 2023



CONTENT

Hind:	alco Industries : Gurdari Bauxite Mine	Environmental Monitoring Report	August 2023
	Gur	dari Bauxite Mine	
	AMBIENT AIR QUALITY- CORE ZO	NE	
1	Entrance Gate / Near Mine Office		
2	Near Kathuwapani Pit-23		
3	Near Mine Weigh Bridge		
4	Near Ambakana Pit / NKCPL Camp		
	AMBIENT AIR QUALITY- BUFFER 7	ZONE	
1	Near Pakri Gada Village		
2	Near Pol Pol Village		
3	Near Shakhuapani Village		
4	Near Dipa Kujam Village		





PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D12M

Email: info@elespl.co.in , eles.ranchi@amail.com

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



TT-RRISE

TEST REPORT

Test Report No.	: ELES/RNC/2023/3345	Report Release Date	: 09.09.2023
Work Order No.	; 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002113F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2842 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha	
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	= 08.08.2023 to 09.08.2023 = 14.08.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvl. Ltd.	
Period of Analysis	: 14,08,2023 to 21.08.2023	Sample Condition	: Sealed & Preserved	

1	Average Temperature (°C)	- 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0,21"E

NABL Accredited Discipline:	Chemical	Group :	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m ^T	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³.	IS 5182 (Part- 24); 2019	21	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	11.7	80 (24hrs)		
Ozone (O ₃)	μg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ²	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)		
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		



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Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of I

Page 1 of 1 ELES Pvt. Ltd. Technical Manages
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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATTA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1ZN ENGINEERING SERVICES PVT, LTD.

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

TEST REPORT

	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NA					
Test Report No.	: ELES/RNC/2023/3345	Report Release Date : 09.09.2023				
Work Order No.	: 13612310218	Work Order Date : 21.04.2023				

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/2842 Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	= 08.08.2023 to 09.08.2023 = 14.08.2023	
Mines Status	Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 14,08,2023 to 21.08,2023	Sample Condition	: Sealed & Preserved	

MI	TEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	3 24	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%)	: 65	4	Weather Condition	Partly Cloudy
5	Longitude	: 84°14'43.25"N	6	Latitude	= 23°19'0.21"E

Discipline : Chemical		Group	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	IS:5182 (part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	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. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

NGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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



TEST REPORT

Test Report No.	; ELES/RNC/2023/3346	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	± TC883923000002114F		

CUSTOMER DET/	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2843 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 08.08.2023 to 09.08.2023 : 14.08.2023 Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	14.08.2023 to 21.08.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg	;) : 736
3	Relative Humidity (%)	: 65	4	Weather Condition	Partly Cloudy

NABL Accredited				
Discipline :	Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	1S 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)
Ozone (O ₁)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₃)	μg/m²	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m²	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

(Sinhs

Authorised Signatory Dr. Deependra Kumer Sinha

Ph. D. Environmental Environ

Page 1 of 1

ELES Pvt. Ltd. Technical Manager

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Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/3346	Report Release Date	: 09.09.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2843 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.08,2023 to 09.08,2023 : 14.08,2023
Mines Status	; Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	; 14.08.2023 to 21.08.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (%C) : 24	2	Barometric Pressure (mmHg)	:736
3	Relative Humidity (%) : 65	4	Weather Condition	: Partly Cloudy

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Berrzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	1S:5182 (Part-12); 2004;RA2019	< 0.5	01(Annual)		

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

Reviewed by

****End of Report****

Authorised Signatory

Dr. Deepend/a Kurnar Sinha

Pn. D. Environmental Engg

ELES Pvt. Ltd. Technical Manager

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NGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone na.: 0651-2290103 Website: www.elespi.co.in



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TEST REPORT

Test Report No.	: ELES/RNC/2023/3347	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002115F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2844 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584,19ha	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.08,2023 to 09.08,2023 : 14.08,2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 14.08.2023 to 21.08.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

NABL Accredited	Okaminal	Chairn	Atmounhari	a Pollution		
Discipline :	7		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	55	100 (24hrs)		
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	27	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	1S 5182 (Part-2); 2001; RA2022	5.9	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	1S 5182 (Part-6): 2006; RA2022	18,1	80 (24hrs)		
Ozone (O ₃)	ug/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₃)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m ¹	IS 5182 (Part-10); 1999; RA2019	<1.()	2 (8hrs)		
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.008	T (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenio (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Amual)		



****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Enga

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NOINTERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3347	Report Release Date	: 09.09.2023	
Work Order No.	: 13612310218	Work Order Date	:: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2844 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584:19ha	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 08.08,2023 to 09.08.2023	
Mines Status	: Operational	Sampling Procedure Sample Drawn By		
Period of Analysis	; 14.08.2023 to 21.08.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 24	2	Barometric Pressure (mmF	Ig) : 736
3	Relative Humidity (%) : 65	- 4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	µg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)	

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

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****End of Report****

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

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ENCINEERING SERVICES PUT, LTD.

Email: info@elespl.co.in , eles.ranchi@amail.com

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



TEST REPORT

Test Report No.	: ELES/RNC/2023/3348	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002116F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2845 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584,19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	= 08.08.2023 to 09.08.2023 = 14.08.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 14:08:2023 to 21:08:2023	Sample Drawn By Sample Condition	ELES Pvt. Ltd. Sealed & Preserved	

METEOROLOGICAL INFORMATION			
1 Average Temperature (°C) : 24	2	Barometric Pressure (mm	Hg) : 736
3 Relative Humidity (%) : 65	4	Weather Condition	: Partly Cloudy

NABL Accredited					
Discipline :	Chemical	Group	Group 2 Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	51	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	µg/m³	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	0.006	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	



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K Binha

Authorised Signatory

Dr. Deependra Kumar Sinha

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

Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3348	Report Release Date	: 09.09.2023	
Work Order No.	: 13612310218	Work Order Date	; 21,04,2023	

CUSTOMER DETA	MLS	SAMPLE DETAILS	
Customer Name	† Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2845 : Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 08.08.2023 to 09.08.2023 : 14.08.2023
Mines Status	Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 14.08.2023 to 21.08.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	TEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 24	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%) : 65	4	Weather Condition	: Partly Cloudy

Discipline	: Chemical	Group	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	JS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	<0.5	01(Annual)		

Remarks: (*)-Parameters are outsourced to other Lah,

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****End of Report****

Authorised Signatory
Dr. Deepandra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvl. Ltd. Technical Manager

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Email: infa@elesal.co.in , eles.ranchl@gmail.com

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



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TEST REPORT

Test Report No.	: ELES/RNC/2023/3349	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002117F		

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	5 Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2846 : Near Pakri Gada Village : 08.08.2023 to 09.08.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 14.08.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 14.08.2023 to 21.08.2023	Sample Condition	: Scaled & Preserved	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 24	2	Barometric Pressure (mmHg)	=737
3	Relative Humidity (%)	: 65	- 4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

NABL Accredited Discipline:	Chemical	Greup	Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	44	100 (24hrs).	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	19	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)	
Nitrogen Di-Oxide (NO ₅)	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.3	80 (24hrs)	
Ozone (O ₃)	μg/m ²	IS 5182 (Part-9): 1974; RA2019	<20.0	(00 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	



****End of Report****

Authorised Signatory Sinha Dr. Deependra Rumar Sinha

Ph. D. Environmental Enga

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

Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3349	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/2846 : Near Pakri Gada Village		
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 08.08.2023 to 09.08.2023 : 14.08.2023 : Ambient Air		
Mines Status	: Operational	Sampling Procedure Sample Drawn By	ELES/DOC/SMPL/02 ELES Pvt. Ltd.		
Period of Analysis	14.08.2023 to 21.08.2023	Sample Condition	: Sealed & Preserved		

-	ETEOROLOGICAL INFOR	44	Twi	The state of the s	000
T.	Average Temperature (°C)	; 24	2	Barometric Pressure (mmHg)	: 737
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23°17'41.21"E

Discipline : Chemical		Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	1S:5182 (Part-11); 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)		

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

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****End of Report****

Authorised Signatory
Ur. Deependra Rumal Sinhal
Ph & Engranmental Engg.
BLSS Pvt. Ltd. Technical Manager

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Email: info@elespl.co.in , eles.ronchi@gmail.com

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



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TEST REPORT

Test Report No.	; ELES/RNC/2023/3350	Report Release Date	: 09,09,2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883923000002118F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	ELES/RNC/2023/AA/2847 Near Pol Pol Village : 08.08.2023 to 09.08.2023	
Address Mines Status	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: 14,08.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
	The state of the s	Sample Condition	: Sealed & Preserved	
Period of Analysis	: 14.08.2023 to 21.08.2023	Sample Condition	. Sealed & Freserveo	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 24	2	Barometric Pressure (mml	lg) : 737
3	Relative Humidity (%) : 65	.4	Weather Condition	: Partly Cloudy

NABL Accredited Discipline 1	Chemical	Group	Atmospheri	e Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	50	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	22	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	12.7	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₁)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph D. Environmental Engel

Page 1 of 1

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PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 INGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3350	Report Release Date	: 09.09.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2847 : Near Pol Pol Village : 08.08.2023 to 09.08.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 14.08.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Mines Status	: Operational	Sample Drawn By		
Period of Analysis	: 14.08.2023 to 21.08.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFORMA	TION			
1	Average Temperature (°C) : 2	4	2	Barometric Pressure (mmHg)	: 737
3.	Relative Humidity (%) : 6	5	4	Weather Condition	: Partly Cloudy

Discipline : Chemical		Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m³	JS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	1S:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)		

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

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****End of Report****

Anthorised Signatory
Dr. Deependra Kurnar Sinha
Pk. D. Environmental Engl
ELES Pvt. Ltd. Technical Manager

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Email: info@elespl.co.in , eles.ranchi@gmail.com

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



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TEST REPORT

Test Report No.	: ELES/RNC/2023/3351	Report Release Date	: 09.09.2023
Work Order No.	: 13612310218	Work Order Date	± 21.04.2023
ULR No.	: TC883923000002119F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/AA/2848 : Near Shakhuapani Village : 09,08,2023 to 10,08,2023 : 14,08,2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Procedure Sample Drawn By Sample Condition	ELES/DOC/SMPD02 ELES Pvt. Ltd.	
Period of Analysis	: 14.08.2023 to 21.08.2023	Santifice & Suprison.	1 4 4 5 6 6 7 7 7 8 6 7 7 7 6 1	

METEOROLO	DGICAL INFORMATION			
1 Average T	emperature (°C) : 25	2	Barometric Pressure (mmHg)	:736
	lumidity (%) = 66	4	Weather Condition	: Partly Cloudy

Discipline :	Discipline : Chemical Group				
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m ³	IS 5182 (Part-23): 2006; RA2022	42	100 (24hrs)	
Particulate Matter (PM1,5)	μg/m³	IS 5182 (Part- 24): 2019	18	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.3	80 (24hrs)	
Ozone (O ₃)	μg/m ³	IS 5182 (Part-9): 1974; RA2019	<20.0	(00 (8hrs)	
Ammonia (NH ₁)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	#00 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³·	IS 5182 (Part-22): 2004; RA 2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	D6 (Annual)	



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Ph. D. Environmental Engg.

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TEST REPORT

Test Report No.	: ELES/RNC/2023/3351	Report Release Date	: 09.09.2023	
Work Order No.	± 13612310218	Work Order Date	; 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name Address	: Hinda(co Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date	: ELES/RNC/2023/AA/2848 : Near Shakhuapani Village : 09.08.2023 to 10.08.2023 : 14.08.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By Sample Condition	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 14.08.2023 to 21.08,2023	Sumple Condition	. Dedica ee i reservoi	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mm	Hg) : 736
3	Relative Humidity (%)	: 66	4	Weather Condition	: Partly Cloudy

Discipline	: Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene*	μg/m³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)	
Benzo (a) Pyrene*	ng/m³	1S;5182 (Part-12): 2004;RA2019	<0.5	01(Annual)	

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

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****End of Report***

Dr. Deependra Kumar Sinha Ph. D. Environmental Engo. ELES Put. Ltd. Technical Manager

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ENGINEERING SERVICES PVT. LTD.

Email: infa@elespl.co.in , eles.ranchi@amail.com

Phone na.: 0651-2290103 Website: www.elespl.co.in



TEST REPORT

Test Report No.	: ELES/RNC/2023/3352	Report Release Date	: 09.09.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	
ULR No.	: TC883923000002120F			

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2849 : Near Dipa Kujam Village : 11.08.2023 to 12.08.2023 : 14.08.2023		
Address Mines Status	: Lohardaga, Tharkhand-835302 : Operational	Sample Received Date Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	= 14.08.2023 to 21.08.2023	Sample Condition	: Sealed & Preserved		

VII	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 735
	Relative Humidity (%)	: 64	4	Weather Condition	: Partly Cloudy

NABL Accredited Discipline:	Chemical	Group :	Atmospheri	c Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	41	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	15 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO ₁)	µg/m³	IS 5182 (Part-2); 2001; RA2022	6.5	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.1	80 (24hrs)
Ozone (O ₃)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH _t)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m ³	15 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)



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

Website: www.elespi.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3352	Report Release Date	: 09.09.2023	
Work Order No.	: 13612310218	Work Order Date	z 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/2849 : Near Dipa Kujam Village : 11.08.2023 to 12.08.2023	
Address	Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	14.08.2023 Ambient Air ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 14.08.2023 to 21.08.2023	- Sample Condition	- Sealed & Frescryou	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 25	2	Barometric Pressure (mm	Hg) : 735	
3	Relative Humidity (%) : 64	4	Weather Condition	: Partly Cloudy	

Discipline	: Chemical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene*	μg/m ³	IS:5182 (Part-11): 2006;RA2017	<1.0	05(Annual)		
Benzo (a) Pyrene*	ng/m³	IS:5182 (Part-12): 2004;RA2019	< 0.5	01(Annual)		

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

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1

****End of Report***

Authorised Signatory
Dr. Deependra Kulmar Sinha
Ph. D. Environmental Engg.
ELES Pvi. Ltd. Technical Manager

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PLDT NO-30, MANSAROVAR ENCLAVE, TUPUDAMA MATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 INCINEERING 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/2023/1715	Report Release Date	z 10.09.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	ELES/RAN/2023/DW/1602 : 05.08.2023 : 28.08.2023
Address	Lohardaga, Jharkhand-835302	Type of Sample Source/Location of Sample	: Drinking Water : Gurdari Bauxite Mines (584.19ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	: 28.08.2023 to 09.09.2023	Sample Condition	: Sealed & Preserved

Discipline : Chem	ical	Group : Water			ory Limit 10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 25.1 °C)	160	APHA 23 rd Ed.2017, 4500-H	7.18	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23rd Ed.2017, 2130 B	0.38	1.0	5.0
Taste	+	APHA 23 rd Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Ödour	-	IS 3025 (Part-5) :2018	Agreeable	Agrecable	Agreeable
Colour	Hazen	APHA 23rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 rd Ed.2017, 2540B,C&D	508	500	2000
Chloride (as Cl)	mg/L	APHA 23 rd Ed.2017, 4500 CI B	18	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 ^{cd} Ed.2017, 2320 B	170	200	600
Total Hardness (as CaCO ₃)	mg/L	APHA 23 rd Ed,2017, 2340 C	188	200	600
Sulphate (as SO ₄)	mg/L	APHA 23rd Ed.2017, 4500 SO ₄ 2-E	40.6	200	400
Nitrate (as NO ₁)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₂ -B	5.28	45	No Relaxation
Phenolic Compound (as C _b H ₅ OH)	mg/L	1S 3025 (Part-43):1992;RA2019	BDL (DL: 0.0005)	0.001	0.002

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TEST REPORT

Test Report No. : ELES/RAN/2023/1715 Report Release Date : 10.09.2023

Work Order No. : 13612310218 Work Order Date : 21.04.2023

Discipl	ine : Che	mical Group: V	Vater		tory Limit (10500:2012
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	44.2	75	200
Discipl	ine: Che	mical 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 23rd Ed.2017, 3111B	BDL (DL: 0.03)	0.05	1.5
Iron (as Fe)	mg/L	APHA 23rd Ed.2017, 3111B	0.316	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: L. pH &: RFC done at Lab.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHANO) GST NO:- 20A4ECE9713D124

Email: info@elespl.co.in , eles.ranchi@amail.com

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

TEST REPORT

Test Report No.	: ELES/RAN/2023/1715	Report Release Date	: 10.09.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Che	mical		Group: Water	
Parameter	Unit	Test Protocol	Result	Regulatory Limit as per IS 10500:2012
Pesticides				
Alachlor*	μg/L	АРНА	BDL (DL; 1.0)	20
Atrazine*	μg/L	APHA	BDL (DL; 1.0)	2
Aldrin/Dieldrin*	μg/L	АРНА	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
Chlorpyriphos*	μg/L	APHA	BDL (DL: 10)	30
Delta HCH*	μg/L	АРНА	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)	£
Endosulfan (alpha, beta, and sulphate)*	μg/L	АРНА	BDL (DL: 0.1)	0.4
Ethion*	μg/L	АРНА	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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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com Phone na.: 0651-2290103 Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RAN/2023/1715	Report Release Date	: 10.09.2023	7
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Bi	alogical	Group: \	Natur	The second secon	ory Limit
Discipline: Di	otogicai	Group:	o atter	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	Chall not	be detected
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	Suan not	be detected
Discipline :	Chemical	Group:	Water		ory Limit 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; 1, (*) Parameters are outsourced to other Lab.

Reviewed b

****End of Report****

Rekina Saxena B. Sc. M. Sc. (Botany) Director ELES Pvt. Ltd.

Page 4 of 4

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ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Gurdari Bauxite Mine-Environmental Monitoring Report

S Engine of S

September- 2023

CONTENT

Hind	alco Industries : Gurdari Bauxite Mine Environmental Monitoring Report September- 202
	Gurdari Bauxite Mine
	AMBIENT AIR QUALITY- CORE ZONE
1	Entrance Gate / Near Mine Office
2	Near Kathuwapani Pit-23
3	Near Mine Weigh Bridge
4	Near Ambakana Pit / NKCPL Camp
	AMBIENT AIR QUALITY- BUFFER ZONE
1	Near Pakri Gada Village
2	Near Pol Pol Village
3	Near Shakhuapani Village
4	Near Dipa Kujam Village
	AMBIENT NOISE
	WORKZONE NOISE
	WORKSHOP EFFLUENT
	SPRING WATER
	STREAM WATER
1	Sankh Nadi (Downstream)
2	Dhardhri Nadi (Downstream)
3	Koyal River (Downstream)
4	Sankh Nadi (Upstream)
5	Dhardhri Nadi ((Upstream)
6	Koyal River (Upstream)





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

TEST REPORT

Test Report No.	: ELES/RNC/2023/3953	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3186 : Entrance Gate/Near Mine Office Gurdari Bauxite Mine (584.19ha)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 05.09,2023 to 06.09,2023 : 12.09,2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 12.09.2023 to 23.09.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mm	Hg) : 738
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy
5	Longitude	: 84°14'43.25"N	6	Latitude	: 23°19'0.21"E

Discipline : Chemica	il.	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	40	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	18	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.5	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	15 5182 (Part-6): 2006; RA2022	14.2	'80 (24hrs)	
Ozone (O ₁)	μg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	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/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Page 1 of 2

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Email: info@elespl.co.in , eles.ranchi@amail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/3953	Report Release Date	: 28.10.2023
Work Order No.	; 13612310218	Work Order Date	: 21.04.2023

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	1S 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

Reviewed by

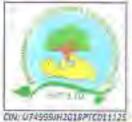
****End of Report****

Authorised Signatory

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

Page 2 of 2

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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/RNC/2023/3954	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3187 : Near Kathuwapani Pit-23 Gurdari Bauxite Mine (584.19ha)	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 05.09.2023 to 06.09.2023 : 12.09.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 12.09 2023 to 23.09.2023	Sample Condition	ELES Pvt. Ltd. Sealed & Preserved	

M	ETEOROLOGICAL INFORMATION			
-1	Average Temperature (°C) : 25	2	Barometric Pressure (mm	Hg) :738
3.	Relative Humidity (%) : 74	4	Weather Condition	: Cloudy

Discipline : Chemica	d)	Group : A	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	20	60 (24hrs)	
Sulphur Di-Oxide (SOz)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	µg/m³	IS 5182 (Part-6): 2006; RA2022	15.8	80 (24hrs)	
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	µg/m³	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10); 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.008	1 (24hrs)	
Nickel (Ni)	ng/m ⁷	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ¹	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Page 1 of 2

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ENGINEERING SERVICES PUT. 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/RNC/2023/3954	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m ⁸	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

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****End of Report****

Ur. Deetherised Signatory Ph. D. Environmental Engg. ELES Pvi. Ltd. Technical Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAH ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-20AAECE9723D124 ENGINEERING SERVICES PUT. LYD.

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/3955	Report Release Date	: 28.10.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3188 : Near Mine Weigh Bridge Gurdari Bauxite Mine (584.19ha)	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 05,09,2023 to 06,09,2023 : 12,09,2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 12.09.2023 to 23.09.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy

Discipline : Chemica	d	Group : A	tmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	1S 5182 (Part-23): 2006; RA2022	42	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO ₂)	μg/m³	[S 5182 (Part-6): 2006; RA2022	16.7	80 (24hrs)
Ozone (O ₃)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH ₂)	μg/m ¹	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m²	15 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

Page 1 of 2

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/3955	Report Release Date	: 28.10.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	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. Deependra Kumar Sinha

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

Page 2 of 2

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PLOT NO-30, MANSARQVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

ENGINEERING SERVICES PYT. LTD.

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/3956	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	All.S	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/3189 Near Ambakana Pit / NKCPL Camp; Gurdari Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	(584.19ha) : 05.09.2023 to 06.09.2023 : 12.09.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 12.09.2023 to 23.09.2023	Sample Drawn By Sample Condition	ELES Pvl Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	0.74	4	Weather Condition	: Cloudy

Discipline : Chemica	d	Group : A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	45	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	22	60 (24hrs)		
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.5	80 (24hrs)		
Nitrogen Di-Oxide (NO ₂)	μg/m³	15 5182 (Part-6); 2006; RA2022	15.7	80 (24hrs)		
Ozone (O ₃)	μg/m¹	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH ₂)	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.005	1 (24hrs)		
Nickel (Ni)	ng/m ³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

Page I of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO: 20AAECE97130124

NGINEERING SERVICES PVF. LTD.

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

Website : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3956	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline : Chemical		Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	μg/m ⁷	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	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. Deependra Kumar Sinha Ph. D. Environmental Engg ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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PLOT NO-BE, MARSANDYAF ENCLAYE TUFUDANA HATIA, RANCHI-ES40ES (IHARKHANO) BET NO. 26445-237110-29

Email: info@elezal.co.in , eles.ranch/@gmail.com

Phone no.: 0651-2290203 Website: www.elesal.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3957	Report Release Date	; 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/3192 : Near Pakri Gada Village : 05.09 2023 to 06.09 2023	
Address	: Lohardagu, Jharkhand-835302	Sample Received Date Type of Sample	: 12.09.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES PVL Ltd.	
Period of Analysis	; 12.09.2023 to 23.09.2023	Sample Condition	: Sealed & Preserved	

VU	ETEOROLOGICAL INFOR	CMATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 74	4	Weather Condition	: Cloudy
5	Longitude	: 84°14'52.25"N	6	Latitude	: 23"17'41.21"E

Discipline: Chemica	d	Group : Atmospheric Pollution			
Parameter Unit		Test Protocol		Regulatory Limit	
Particulate Matter (PM10)	µg/m²	IS 5182 (Part-23): 2006; RA2022	39	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24); 2019	22	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	µg/m³	JS 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.7	80 (24hrs)	
Ozone (O ₃)	μg/m³	(S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Pan- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m ⁸	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	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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ELOT NO-30, MANSAROVAR ENCINVE TURNOANA HATIA, BANCHI-RS-1003 JURAKHANIOJ EST NO: 2044ECEST LIDIZA ENGINERATIVE LEWISERS GAS: TAS

Email: Info@elespl.co.in , eles.ranchi@amail.com Phone m.: 0551-2290103 Wesste : www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3957	Report Release Date	: 28.10.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C ₆ H ₆)*	µg/m³	1S 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)	

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

lewed by

****End of Report****

Authorised Signatory

The pendra Krimer Sinham, C. Shinanna Lai Engg. St. E.S. Fin, Lili Technical Manager

Page 2 of 2

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Empli info@elespl.co.in eles rapchigo moil.com Phane no: 0681-2290103

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TEST REPORT

Test Report No.	: ELES/RNC/2023/3958	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	; ELES/RNC/2023/AA/3193 ; Near Pol Pol Village ; 05.09,2023 to 06.09,2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 12.09.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.	
Period of Analysis	: 12.09.2023 to 23.09.2023	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
I	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 74	:4	Weather Condition	Cloudy

Discipline: Chemics	a)	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	43	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m²	1S 5182 (Part- 24): 2019	20	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m ¹	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)	
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	15.5	80 (24hrs)	
Ozone (O ₃)	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₄)	µg/m	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (Shrs)	
Lead (Pb)	μg/m ¹	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/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Page 1 of 2

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PLOT NO-BO, MANSA HUWAH ENGLAVE, TUPUDANK HATIA, RANCHKEBADOE (MARKINGLING) EST NOI-20446/ESTIXUIN

Email: Into@eiespl.co.in , eles ranchi@amail.com

Phone no.: 0551-2290103 Website : www.elenpi.cn/r

TEST REPORT

Test Report No.	; ELES/RNC/2023/3958	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023	

Discipline : Chemical		Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene+	ng/m ¹	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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

Reviewed by

****End of Report****

Authorised Signatory

Despairing Rumar Sinha

The Despricemental Engg.

Description Manager

Page 2 of 2

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FLOT NO-30, MANSAROVATI ENCLAVE TUPNEMNY HATIA, RANCHI-134003 (IMATORIANO) 30 NO-30AAECEITEDITI

Email: lelo@els.ul.co.in . elev.ranchi@gmun.com

Phone no.: 0551-2290103 Waterie: www.elecul.co.in

TEST REPORT

Test Report No.	; ELES/RNC/2023/3959	Report Release Date	: 28,10,2023	
Work Order No.	÷ 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location Sampling Date Sample Received Date Type of Sample Sample	: ELES/RNC/2023/AA/3194 : Near Shakhuapani Village : 06,09,2023 to 07,09,2023 : 12,09,2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sample Drawn By	ELES Pvt. Ltd.	
Period of Analysis	: 12,09,2023 to 23,09,2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline: Chemics	al	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m ¹	IS 5182 (Part-23): 2006; RA2022	42	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	1S 5182 (Part- 24): 2019	17	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	18.2	80 (24hrs)	
Ozone (O ₅)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH _s)	μg/m [†]	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 ⁷	IS 5182 (Part-22): 2004; RA2019.	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	IS-5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenic (As)	ng/m ^t	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Page 1 of 2

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PLOT NO-EQ MANSAROVAR ENCLAVE TUPUDARIA HATVA BENCH-\$14003 (JHAKEHAND) BET NO:-JULABLESTISDIEL

Email: Info@elesal.co.in . eles ranchi@amall.com

Plane no.: 0651-2256161 Website I www.elessi.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3959	Report Release Date	: 28.10.2023	
Work Order No.	13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	ical	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	μg/m³	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.

Reviewed by

****End of Report****

Anthorised Signatory

T. Deependre Kumer Skits Pr. P. Emwannertal Engg St. Et Fvt. Ltd. Technical Manager

Page 2 of 2

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Emall info@elessd.cv.in . eles-ranchi@gma(Lcom

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TEST REPORT

Test Report No.	; ELES/RNC/2023/3960	Report Release Date	: 28.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location Sampling Date	: ELES/RNC/2023/AA/3195 : Near Dipa Kujam Village : 07.09.2023 to 08.09.2023		
Address	: Lohardaga, Jharkhand-835302	Sample Received Date Type of Sample Sampling Procedure	: 12.09.2023 : Ambient Air : ELES/DOC/SMPL/02		
Mines Status	: Operational	Sample Drawn By	: ELES Pvt. Ltd.		
Period of Analysis	: 12.09,2023 to 23.09.2023	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mm	Hg) : 742
3	Relative Humidity (%) : 70	4	Weather Condition	: Cloudy

Discipline : Chemica	d .	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	цg/m³	LS 5182 (Part-23): 2006; RA2022	48	100 (24hrs)	
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	24	60 (24hrs)	
Sulphur Di-Oxide (SO ₂)	μg/m³	IS 5182 (Part-2): 2001; RA2022	<5.0	80 (24hrs)	
Nitrogen Di-Oxide (NO ₂)	μg/m ³	IS 5182 (Part-6): 2006; RA2022	17.3	80 (24hrs)	
Ozone (O ₅)	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH ₃)	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m ¹	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<0.0	20 (Annual)	
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)	

Page 1 of 2

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RLDT NO-SO, MANSARCINAN ENCLAYE, FUNDINANA HATIA, RANCHI-834003 (JHARRIWANIO) 65TMG - 254267597130354

Email: Info@elespt.co.in . eles.runchi@amail.com Phone noi: 0651-2290103

Weisite workelespico.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/3960	Report Release Date	: 28.10.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Chemi	ical	Group:	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C ₆ H ₆)*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12)2004;RA2019	< 0.5	01(Annual)

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

Reviewed by

****End of Report***

Authorised Signator Sinhs
On Deependra Kamator Sinhs
Ps. D. Environmental Engo.
PLES Pv. Ltd. Technical Manager

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124 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/RNC/2023/4134	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sample Drawn By	: 05.09.2023 to 06.09.2023 : 30.09.2023 : Ambient Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	: 30.09.2023 to 10.10.2023	

M	ETEOROLOGICAL INFORM	IATION			
1	Average Temperature (°C):	25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	74	4	Weather Condition	: Cloudy

Location	Unit	Test Protocol	Res	ult	Regulatory Limit (Industrial Zone)
V 2 2 10 1			Time	Leq	
Near Mine Office Gurdari Bauxite Mine (584.19ha)	dB(A) IS 9989:1981, RA 2020		Day Time	66	75 dB(A) Day Time &
Sample ID: ELES/RNC/2023/AN/3526		KA 2020	Night Time	48	70 dB(A) Night Time

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****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha
Pn. D. Environmental Engg.
ELES Pvi. Ltd. Technical Manager

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/4156	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sample Drawn By	: 05.09.2023 : 30.09.2023 : Workzone Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	= 30.09.2023 to 11.10.2023	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 25	2	Barometric Pressure (mmH	g) : 738
3	Relative Humidity (%) :: 68	4	Weather Condition	: Cloudy

Location	Unit	Test Protocol	Resi	alt	Regulatory Limit (Industrial Zone)
Near Kathuwapani Pit -	-		Time	Leq	
Gurdari Bauxite Mine (584.19ha)	dB(A)	IS 4758:1968; RA 2017	15		90 dB (A)
Sample ID: ELES/RNC/2023/WN/3548	Day Tin		Day Time	75	

Reviewed by

****End of Report***

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

ELES Pvt. List. Technical Managel

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

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/4097	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2023/EF/3191 : 05.09.2023 : 12.09.2023	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample	: Effluent Water : Work Shop Effluent - Gurdar Bauxite Mines (584.19 ha)	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.	
Period of Analysis	: 12.09.2023 to 22.09.2023	Sample Condition	: Sealed & Preserved	

Discipline: Chemical		Group: Pollution & Er	vironment	Discharge Lim EPR, 1986 Sc		
Parameter Unit		Test Protocol	Result	Inland Surface Water	Land for Irrigation	
Dissolved Oxygen (as DO)	mg/L	IS 3025 (Part-38):1989; RA2019	6.7	-	200	
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.238	2.0	See	
Sulphide (as S)	mg/L	IS 3025 (Part-29) :1986; RA2019	BDL (DL: 0.04)	2.0	1940	
Discipline: Chem	ical	Group: Residues in Water				
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.01)	70.1	>	
Manganese (as Mn)	mg/L	APHA 23 rd Ed.2017; 3111 B	BDL (DL: 0.05)	2,0	-	
Mercury (as Hg)	mg/L	IS 3025 (Part-48):1994; RA2019	BDL (DL: 0.001)	0.01	**	
Nickel (as Ni)	mg/L	APHA 23 rd Ed,2017; 3111 B	BDL (DL: 0.01)	3.0	X	

A Les hourses Reviewed by

****End of Report****

or Authorized Signatorship

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

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ENGINEERING SERVICES PVT, LTD.

Email: info@elespl.co.in , eles.ranchi@amail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/4106	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/SW/3498 :: 05.09.2023 :: 29.09.2023 :: Surface Water
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	Spring Water Gurdari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.
Period of Analysis	- 29,09.2023 to 17.10.2023	Sample Condition	: Sealed & Preserved

Discipline: Chemic	al	Group	: Water	Tolerance Limits	
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)	
pH (at 24.9 °C)	8	IS 3025 (Part 11): 2022	6.60	6.5-8.5	
Colour	Hazen	IS 3025 (Part -4): 2021	6,0	300	
Odour	-	IS 3025 (Part-5): 2018	Unobjectionable	-	
Taste	12	APHA 23rd Ed.2017, 2160 C	N/A		
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	0.53	let .	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	160	1500	
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986; RA2019	49	15	
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	65.2	×	
Sulphate (as SO ₄)	mg/L	1S 3025 (Part 24): 1986; RA2019	4.8	400	
Nitrate (as NO ₁)	mg/L	APHA 23rd Ed, 2017, 4500 NO ₃ -B	1.32	50	
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	20.9	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	
Phenois Compounds (as C ₀ H ₃ OH)	mg/L	1S 3025 (Part-43): 1992;RA2019	BDL (DL: 0.0005)	0.005	

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

ENGINEERING SERVICES PYT. LTD.

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

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

TEST REPORT

 Test Report No.
 : ELES/RNC/2023/4106
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: C	hemical	Group: Wate	r	Tolerance Limits
Parameter	Unit	Test Protocol	Result	ns per IS 2296-1992 Class C (Inland Surface Water
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	17.4	-
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	=
Discipline: Ch	emical	Group: Residue		
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	APHA23 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	0.232	50
Lead (as Pb)	mg/L	APHA 23 st Ed.2017, 3111 B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 23rd Ed.2017; 3111 B	BDL (DL: 0.05)	-
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	т.
Selenium (as Se)	mg/L	IS 3025 (Part-56) :2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 st Ed.2017, 3111 B	BDL (DL: 0.1)	15
Discipline: Bi	ological	Group: Wat	1	
Total Coliform	CFU/100 mL	(S 15185: 2016, RA2021	1,72 ×10 ²	5000
Escherichia Coli	CFU/100 mL	IS 15185:2016; RA2021	54	H

Remarks: I. pH & RFC done at Lab.

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

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

TEST REPORT

Test Report No.	; ELES/RNC/2023/4106	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Che	mical	Group:	Water
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	1S 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	< 0.0001
Pesticides			
Alachlor*	μg/L	APHA	<1.0
Atrazine*	µg/L	APHA	<1.0
Aldrin/Dieldrin*	µg/L	АРНА	< 0.01
Alpha HCH*	µg/L	АРНА	<0.001
Beta HCH*	μg/L	АРНА	< 0.01
Butachlor*	μg/L	APHA	<10
Chlorpyriphos*	μg/L	АРНА	<10
Delta HCH*	µg/L	APHA	<0.01
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	μg/L	АРНА	<0.5
Endosulfan (alpha, beta, and sulphate)*	μg/L	АРНА	<0.1
Ethion*	μg/L	APHA	<0.5
Gamma HCH (Lindane)*	μg/L.	АРНА	<0.5
Isoproturon*	µg/L	APHA	<0.5

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

Reviewed by

****End of Report****

Authorised Signatory

Or, Deependra Kumar Simus

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

Page 3 of 3

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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/RNC/2023/4121	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/SW/3513 : 05.09.2023 : 29.09.2023 : Surface Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Down Stream : Sankh Nadi, Gurdari Bauxite Minc (584.19ha)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 29.09.2023 to 17.10.2023	Sample Collected By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline: Chemica	1	Group; Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 15 2296-1992 Class C (Inland Surface Water)
pH (at 24.7°C)	~	IS 3025 (Part 11): 2022	6.52	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	8.0	300
Odour	-	IS 3025 (Part-5); 2018	Unobjectionable	14
Taste	1	APHA 23 ⁶³ Ed.2017, 2160 C	N/A	19-5
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	16.9	-
Total Dissolved Solids (TDS)	mg/L	1S 3025 (Part 16):1984; RA2017	304	1500
Total Alkalinity (as CaCO3)	mg/L	IS 3025 (Part-23)±1986; RA2019	95.8	-
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	118.5	-
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	14.2	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.74	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	35.1	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.148	1,5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05

Page 1 of 3

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20A4ECE9713D124

ENGINEERING SERVICES PYT. 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/RNC/2023/4121
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: C	hemical	Group: Wate	r .	Tolerance Limits
Parameter	Unit	Test Protocol	Result	us per IS 2296-1992 Class C (Inland Surface Water)
Phenols Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.0005)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	31	
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	
Discipline: Ch	emical	Group: Residu		
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)	- 4
Cadmium (as Cd)	mg/L	APHA23 rd Ed.2017; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 23rd Ed.2017; 3111B	BDL (DL: 0.03)	- 4
Copper (as Cu)	mg/L	APHA 23rd Ed.2017; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 23" Ed.2017; 3111B	0.317	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)	4
Mercury (as Hg)	mg/L	IS 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	п
Selenium (as Se)	mg/L	18 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
Discipline: Biological		Group: Wat	er	
Total Caliform	CFU/100 mL	IS 15185: 2016, RA2021	1.72×10 ³	5000
Escherichia Coli	CFU/100 mL	IS 15185:2016; RA2021	BDL (DL: 1.0)	- 14

Remarks: 1. pH & RFC done at Lab.

Page 2 of 3

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Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/4121	Report Release Date	: 31.10.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Cho	emical	Group:	Water
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0,1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23rd Edition	<0.0001
Pesticides			
Alachlor*	µg/L	АРНА	<1.0
Atrazine*	μg/L	АРНА	<1.0
Aldrin/Dieldrin*	μg/L	APHA	< 9.01
Alpha HCH*	μg/L.	APHA	< 0.001
Beta HCH*	μg/L	АРНА	< 0.01
Butachlor*	μg/L	APHA	<10
Chlorpyriphos*	µg/L	АРНА	<10
Delta HCH*	μg/L	APHA	<0.01
2,4 dichlorophenoxyacetic acid*	µg/L	АРНА	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	АРНА	<0.5
Endosulfan (alpha, beta, and sulphate)*	μg/L	АРНА	<0.1
Ethion*	µg/L	АРНА	< 0.5
Gamma HCH (Lindane)*	μg/L	АРНА	<0.5
Isoproturon*	μg/L	APHA	<0.5

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

Reviewed by

****End of Report****

Dr. D. Saythorised Signatorya

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

Page 3 of 3

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

ENGINEERING SERVICES PUT, LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/4122	Report Release Date	: 31,10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	# Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/SW/3514 : 05.09.2023 : 29.09.2023 : Surface Water	
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	: Down Stream : Dhardhari Nadi, Gurdari Bauxite Mine (584,19ha)	
Mines Status	Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 29.09.2023 to 17.10.2023	Sample Collected By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline: Chemica	1	Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water
pH (at 24.8 °C)	- >- 1	IS 3025 (Part 11): 2022	6.70	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	9.0	300
Odour	+	IS 3025 (Part-5) : 2018	Unobjectionable	J
Taste		APHA 23 rd Ed.2017, 2160 C	N/A	1-7
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	11.6	-
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	276	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) 11986; RA2019	87.7	
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	124	Vir.
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	9.2	400
Nitrate (as NO ₃)	mg/L	APHA 23rd Ed 2017, 4500 NO3-B	2.48	50
Chloride (as CI)	mg/L	IS 3025 (Part-32):1988; RA2019	51.3	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.149	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05

Page 1 of 3

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ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

Phone na.: 0651-2290103 Website: www.elespi.co.in

TEST REPORT

 Test Report No.
 : ELES/RNC/2023/4122
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: C	hemical	Group: Wate	r	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Phenols Compounds (as C ₆ H ₂ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL, (DL: 0.0005)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	33	-
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	-
Discipline: Ch	emical	Group: Residu	es 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	APHA23 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
fron (as Fe)	mg/L	APHA 23rd Ed.2017; 3111B	0.243	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
Discipline: Bi	ological	Group: Wat	er	
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	2.27×10 ²	5000
Escherichta Cali	CFU/100 mL	IS 15185:2016; RA2021	BDL (DL: 1.0)	9

Remarks: 1, pH & RFC done at Lab.

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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/RNC/2023/4122	Report Release Date	: 31,10.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Che	emical	Group:	Water
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Arumatic Hydrocarbons (PAH)*	mg/L	APHA 23rd Edition	<0.0001
Pesticides			
Alachlor*	μg/L	APHA	<1.0
Atrazine*	μg/L	APHA	<1.0
Aldrin/Dieldrin*	µg/L	АРНА	<0.01
Alpha HCH*	μg/L	APHA	< 0.001
Beta HCH*	µg/L	APHA	< 0.01
Butachlor*	µg/L	АРНА	<10
Chlorpyriphos*	μg/L	APHA	<10
Delta HCH*	µg/L	АРНА	< 0.01
2,4 dichlorophenoxyacetic acid*	μg/L	APHA	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	μg/L	АРНА	<0.5
Endosulfan (alpha, beta, and sulphate)*	μg/L	АРНА	<0.1
Ethion*	μg/L	APHA	<0.5
Gamma HCH (Lindane)*	μg/L	АРНА	<0.5
Isoproturon*	µg/L	APHA	<0.5

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

Reviewed by

****End of Report****

Dr. Deependra Signatory
Pt. D. Environmental Engg.

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Page 3 of 3

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AA6CE971301Z4

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/RNC/2023/4123	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/SW/3515 : 05.09.2023 : 29.09.2023 : Surface Water
Address	: Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	Down Stream Koyal River, Gurdari Bauxite Mine (584.19ha)
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01
Period of Analysis	: 29.09.2023 to 17.10.2023	Sample Collected By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

Discipline: Chemica	ı.	Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	us per 15 2296-1992 Class C (Inland Surface Water)
pH (at 24.7 °C)	+	IS 3025 (Part 11): 2022	6.82	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	7.0	300
Odour	R	IS 3025 (Part-5): 2018	Unobjectionable	+
Taste	1.2	APHA 23 rd Ed.2017, 2160 C	N/A	
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	16.2	124
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	286	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986; RA2019	77.5	
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	130	-
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	9.2	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.78	50
Chloride (as Cl)	mg/L	1S 3025 (Part-32) :1988; RA2019	36.1	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.194	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed,2017, 4500 CN-E	BDL (DL: 0.012)	0.05

Page 1 of 3

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) 65T NO:- 10AAECE97130124

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/RNC/2023/4123
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: C	hemical	Group: Wate	20	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water
Phenals Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.0005)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	34.8	144
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	-
Discipline: Ch	remical	Group: Residu	And the second live and th	
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL. (DL: 0.02)	100
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	APHA23 rd Ed.2017, 3111B	BDL (DL: 0.003)	0.01
Total Chromium (us 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 23rd Ed.2017; 3111B	0.273	50
Lead (as Pb)	mg/L	APHA 23 rd Ed.2017, 3111 B	BDL (DL: 0.01)	1.0
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)	4
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
Discipline: Bi	ological	Group: Wat	-	
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	4.27×10 ²	5000
Escherichia Coll	CFU/100 mL	IS 15185:2016; RA2021	18	P-1

Remarks: 1. pH & RFC done at Lab.

Page 2 of 3

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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.: D651-2290103 Website: www.elespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4123	Report Release Date	± 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Che	emical	Group:	Water
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	1S 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	rng/L	APHA 23 th Edition	<0.0001
Pesticides			
Alachlor*	µg/L	APHA	<1.0
Atrazine*	μg/L	АРНА	<1.0
Aldrin/Dieldrin*	µg/L	АРНА	< 0.01
Alpha HCH*	μg/L	APHA	<0.001
Beta HCH*	μg/L	АРНА	< 0.01
Butachlor*	μg/L	APHA	<10
Chlorpyriphos*	μg/L	АРНА	<10
Delta HCH*	μg/L	APHA	< 0.01
2,4 dichlorophenoxyacetic acid*	μg/L	АРНА	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	μg/L.	АРНА	<0.5
Endosulfan (alpha, beta, and sulphate)*	μ <u>α</u> /L	АРНА	<0.1
Ethion*	μg/L	APHA	< 0.5
Gamma HCH (Lindane)*	µg/L	АРНА	<0.5
Isoproturon*	μg/L	APHA	<0.5

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

Reviewed by

****End of Report****

Dr. Deependra Kumar Sinha

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

Page 3 of 3

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-034003 (JHARKHAND) GST ND:- 20AAECE97130124

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@gmail.com

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

TEST REPORT

Test Report No.	: ELES/RNC/2023/4116	Report Release Date	: 31.10.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2023/SW/3508 : 05.09.2023 : 29.09.2023 : Surface Water
Address	: Lohardaga, Jharkhand-835302.	Source of Sample Location of Sample	: Up Stream : Dhardhari Nadi, Gurdari Bauxite Mine (584.19ha)
Mines Status	Operational	Sampling Procedure	ELES/DOC/SMPL/01
Period of Analysis	±29.09.2023 to 17.10.2023	Sample Collected By Sample Condition	; ELES Pvt. Ltd. ; Sealed & Preserved

Discipline: Chemica	d	Group: Water		Tolerance Limits
Parameter I		Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.9°C)	12-	IS 3025 (Part 11): 2022	6.97	6.5-8.5
Colour	Hazen	IS 3025 (Part -4) ; 2021	9.0	300
Odour	11.41	IS 3025 (Part-5): 2018	Unobjectionable	-
Taste	10	APHA 23 rd Ed.2017, 2160 C	N/A	- 3
Turbidity	mg/L	IS 3025 (Part-10) :1984;RA2017	18.8	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	228	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986; RA2019	71.4	
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	102.7	THE STATE OF THE S
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	11.7	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.78	50
Chloride (as Cl)	mg/L	IS 3025 (Part-32):1988; RA2019	38	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.181	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05

Page 1 of 3

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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/RNC/2023/4116
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: (Chemical	Group: Wat	er	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Phenols Compounds (as C ₆ H ₄ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL: 0.0005)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	27.4	_
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	-
Discipline: Cl	hemical	Group: Residu		
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	75
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	APHA23 rd Ed.2017; 3111B	BDL (DL; 0.003)	0.01
Total Chrominm (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 23rd Ed.2017; 3111B	0.390	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	BD1, (DL: 0.05)	
Mercury (as Hg)	mg/L	1S 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
Discipline: Bi		Group: Wate		
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	3.72×10 ²	5000
Escherichia Cali	CFU/100 mL	IS 15185;2016; RA2021	54	-

Remarks: 1. pH & RFC done at Lab.

Page 2 of 3

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FLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, HANCHI-834003 (IMARKHANO) GST NO:- 20A4ECE9713D124

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/RNC/2023/4116
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: Che	emical	Group:	Water
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	<0.0001
Pesticides			
Alachlor*	μg/L	APHA	<1.0
Atrazine*	μg/L	APHA	<1.0
Aldrin/Dieldrin*	µg/L	АРНА	< 0.01
Alpha HCH*	µg/L	APHA	< 0.001
Beta HCH*	μg/L	APHA	<0.01
Butachlor*	μg/L	APHA	<10
Chlorpyriphos*	µg/L	АРНА	<10
Delta HCH*	μg/L	APHA	< 0.01
2,4 dichlorophenoxyacetic acid*	μg/L	АРНА	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	μg/L	АРНА	<0.5
Endosulfan (alpha, beta, and sulphate)*	μg/L	APHA	<0.1
Ethion*	µg/L	APHA	< 0.5
Gamma HCH (Lindane)*	μg/L	APHA	<0.5
Isoproturon*	µg/L	APHA	< 0.5

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

Reviewed by

****End of Report****

Dr. Deependra Kumar Sinha

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

Page 3 of 3

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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/RNC/2023/4115	Report Release Date	: 31,10,2023	
Work Order No.	: 13612310218	Work Order Date	: 21,04.2023	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name Address	: Hindulco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Sampling Date Sample Received Date Type of Sample Source of Sample Location of Sample	: ELES/RNC/2023/SW/3507 : 05.09.2023 : 29.09.2023 : Surface Water : Up Stream : Sankh Nadi, Gurdari Bauxite
Mines Status	: Operational	Sampling Procedure	Mine (584,19ha) ELES/DOC/SMPL/01
Period of Analysis	: 29.09.2023 to 17.10.2023	Sample Collected By Sample Condition	; ELES Pvt. Ltd. ; Sealed & Preserved

Discipline: Chemica	ď	Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.8°C)	20	18 3025 (Part 11): 2022	6.89	6,5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	10	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	23.8	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	184	1500
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23) :1986; RA2019	61.2	
Total Hardness (as CaCO ₅)	mg/L	IS 3025 (Part-21): 2009; RA2019	77	
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	16.4	400
Nitrate (as NO ₃)	mg/L	APHA 23 rd Ed.2017, 4500 NO ₃ -B	1.47	50
Chloride (as CI)	mg/L	IS 3025 (Part-32):1988; RA2019	21.8	600
Fluoride (as F)	mg/L	IS 3025 (Part-60) :2008; RA2019	0.143	1.5
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05

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FLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHANO) GST NO:- 20A4ECE9713D174

ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles,ranchi@gmail.com

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

TEST REPORT

 Test Report No.
 : ELES/RNC/2023/4115
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: (Chemical	Group: Wat	er	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Phenols Compounds (as C ₀ H ₃ OH)	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL, (DL: 0.0005)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	20,5	-
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	94
Discipline: C	hemical	Group: Residu	es in Water	
Aluminium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	-
Arsenic (as As)	mg/L	1S 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	APHA23 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 23rd Ed.2017; 3111B	0.364	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)	44
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 th Ed.2017, 3111 B	BDL (DL: 0.1)	15
Discipline: Bi	1	Group: Wate	er	
Total Coliform	CFU/100 mL	1\$ 15185; 2016, RA2021	2.18×10 ³	5000
Escherichia Coli	CFU/100 mL	IS 15185:2016; RA2021	5.45×10 ²	-

Remarks: L. pH & RFC done at Lab.

Page 2 of 3

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 201/4ECE97130124 ENGINEERING SERVICES PVT. LTD.

Email: info@elespl.co.in , eles.ranchi@amail.com

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

TEST REPORT

 Test Report No.
 : ELES/RNC/2023/4115
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: Ch	emical	Group:	Water
Parameter	Unit	Test Protocol	Result
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0.1
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	<0.0001
Pesticides			
Alachlor*	μg/L	APHA	<1.0
Atrazine*	μg/L	APHA	<1.0
Aldrin/Dieldrin*	µg/L	APHA	< 0.01
Alpha HCH*	μg/L	АРНА	< 0.001
Beta HCH*	μg/L	APHA	< 0.01
Butachlor*	μg/L	APHA	<10
Chlorpyriphos*	µg/L	APHA	<10
Delta HCH*	µg/L	APHA	<0.01
2,4 dichlorophenoxyacetic acid*	μg/L	APHA	<10
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	μg/L	APHA	<0.5
Endosulfan (alpha, beta, and sulphate)*	µg/L	АРНА	<0.1
Ethion*	µg/L	АРНА	<0.5
Gamma HCH (Lindane)*	μg/L	APHA	<0.5
Isoproturon*	μg/L	APHA	< 0.5

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

Reviewed by

****End of Report****

Authorised Signatory Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 3 of 3

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-634003 (IHARKHAND) GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PUT, 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/RNC/2023/4119	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2023/SW/3511 : 05.09.2023 : 29.09.2023 : Surface Water	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source of Sample Location of Sample	: Up Stream : Koyal River, Gurdari Bauxite Mine (584,19ha)	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/01	
Period of Analysis	: 29.09.2023 to 17.10.2023	Sample Collected By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

Discipline: Chemica	d	Group: Water	Group: Water			
Parameter Uni		Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Wate		
pH (at 24.8°C)	1.4	IS 3025 (Part 11): 2022	6.86	6.5-8.5		
Colour	Hazen	IS 3025 (Part -4): 2021	7.0	300		
Odour		IS 3025 (Part-5): 2018	Unobjectionable			
Taste	1,47	APHA 23 rd Ed.2017, 2160 C	N/A			
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	8.6			
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	298	1500		
Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part-23):1986; RA2019	89.7	er er		
Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part-21): 2009; RA2019	118.5			
Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24): 1986; RA2019	10.5	400		
Nitrate (as NO ₅)	mg/L	APHA 23rd Ed.2017, 4500 NO3-B	1.82	50		
Chloride (as CI)	mg/L	1S 3025 (Part-32) :1988; RA2019	50.3	600		
Fluoride (as F)	mg/L	1S 3025 (Part-60) :2008; RA2019	0.148	J.:5		
Cyanide (as CN)	mg/L	APHA 23 rd Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05		

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

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/RNC/2023/4119
 Report Release Date
 : 31.10.2023

 Work Order No.
 : 13612310218
 Work Order Date
 : 21.04.2023

Discipline: C	hemical	Group: Wate	Tolerance Limits	
Parameter	Unit	Test Protocol	Test Protocol Result	
Phenols Compounds (as C ₄ H ₂ OH).	mg/L	IS 3025 (Part-43): 1992;RA2019	BDL (DL; 0.0005)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 1991;RA2019	31.6	4
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) :2021	BDL (DL: 0.1)	-
Discipline: Cl	emical	Group: Residue	and the second second	
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	APHA23 ^{nl} 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 ^{ed} Ed.2017; 3111B	BDL (DL: 0.03)	115
Iron (as Fe)	mg/L	APHA 23 rd Ed.2017; 3111B	0.283	50
Lead (as Pb)	mg/L	APHA 23 st Ed.2017, 3111 B	BDL (DL: 0,01)	0,1
Manganese (as Mn)	mg/L	APHA 23 st 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 _v 3111 B	BDL (DL: 0.1)	15
Discipline: Bi	ological	Group: Wat		
Total Coliform	CFU/100 mL	IS 15185: 2016, RA2021	8.18×10 ²	5000
Escherichia Coli	CFU/100 mL	IS 15185:2016; RA2021	BDL (DL: 1.0)	-

Remarks: 1. pH & RFC done at Lab.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) G5T NO:- 20AAECE97130124

GINEERING 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/RNC/2023/4119	Report Release Date	: 31.10.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline; Che	emical	Group:	Group: Water		
Parameter	Unit	Test Protocol	Result		
Anionic Surfactants (as MBAS)*	mg/L	IS 3025 Part 68	<0.1		
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	<0.1		
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 rd Edition	<0.0001		
Pesticides					
Alachlor*	µg/L	APHA	<1.0		
Atrazine*	μg/L	APHA	<1.0		
Aldrin/Dieldrin*	μg/L	APHA	<0.01		
Alpha HCH*	μg/L	АРНА	< 0.001		
Beta HCH*	μg/L	APHA	< 0.01		
Butachlor*	µg/L	АРНА	<10		
Chlorpyriphos*	μg/L	APHA	<10		
Delta HCH*	μg/L	APHA	< 0.01		
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	<10		
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	μg/L	АРНА	<0.5		
Endosulfan (alpha, beta, and sulphate)*	μg/L	АРНА	<0.1		
Ethion*	µg/L	АРНА	<0.5		
Gamma HCH (Lindane)*	µg/L	АРНА	<0.5		
Isoproturon*	μg/L	APHA	<0.5		

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

Reviewed by

****End of Report****

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

Page 3 of 3

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Annexure 3

Date - 01.11.2023

Office Order

Environmental Cell has been re-constituted at Gurdari Bauxite Mine (Area 584.19 ha) comprising below mentioned team members. The team will ensure compliance with the Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

- 1. Mr. Vidya Singh (Coordinator)
- 2. Mr. Krishnendu Das (Member)
- 3. Ms. Swetapadma Nanda- 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.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)

Annexure 4

	Production, Min	ned Out, Ba	ck Filled and	Over Burden	removal from	n April'23 to	September ⁴	'23
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	0	0	0.00	0.00
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	148918	0.92	0.45	163157.26
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	56738	0.4	0.49	27329.28
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	102270	2.1	1.61	157784.02
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	61110	3.02	1.21	134785.10
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	100700	2.91	1.00	125875.50
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	78106	3.07	2.38	242675.00
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	14860	0.39	0.35	14280
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	43320	1.12	1.15	77170
10	Jalim & Sanai Bauxite 'Mine	12.14	50000	16.10.1974 to 31.03.2030	26725	0.21	0.2	8750
11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL

Annexure 4

15	Pakhar (115.13)			19.07.1996 to				
		115.13	300000	31.03.2030	147508.00	2.29	0.4	532571.87
				Miner	als & Minerals Li	mited		
16	Pakhar (15.58)			28.04.1965 to	80.00	0.00	0.00	0.00
		15.58	60000	31.03.2030		0.00	0.00	0.00
17	Pakhar (109.507)			26.07.2008 to	97720.00			
		109.507	280000	25.07.2058		1.93	0.71	237280.85
18	Bimarla Bauxite Mine			18.07.2009 to				
		134.37	300000	17.07.2059	39550	2.21	0.8	64913.65
19	Amtipani Chirodih			11.01.2017 to				
	Bauxite Mines	130.01	450000	10.01.2067	84678	3.96	1.15	98519.66

^{*}Static information about the mines included in the above table



Basudev Gangopadhyay

AVP (Planning, Environment and Compliance)

Annexure-5

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

The composite cost during the year 2023-24 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115,13 ha), Pakhar (15.58 ha), Pakhar (109.507 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Serengdag (140.06 ha), Serengdag (155.81 ha), Jalim & Sanai (12.14 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.97 ha) Kujam II (157.38 ha), Bagru (75.41 ha), Hisri New (14.55 ha), Chiro kukud (152.57 ha), Orsa pat (196.36 ha), Bhusar (65.31 ha), Bimarla Bauxite Mines (134.52 ha) and Amtipani Chirodih (130.01 ha) Bauxite Mine.

S No	Description	Budget (in Rupees) FY 2023-24	Actual (in Rupees) FY 2023-24 (From April'23 to September'23)
1	Pollution Control & Environment monitoring	1,57,41,102.00	82,15,825.36
2	Reclamation/ Back filing & Rehabilitation**	1,36,62,095.00	6,66,42,814.70
3	Green belt, Plantation & Water sprinkling arrangement	67,45,898.00	19,34,590.20
4	Rural Development	6,19,33,534.00	1,83,73,453.27

^{**}Part of OB removed cost.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)