

HIL/LHD/ENV/MoEF/709

Date: 23.05.2024

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

**Sub:** Compliance Report of EC conditions for Pakhar (35.12 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga, Jharkhand for the period October'23 to March'24.

Ref: Environmental Clearance letter no J-11015/137/2006-IA II (M) dated 5<sup>th</sup> April 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar (35.12 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited located** in Lohardaga, Jharkhand for the period October'23 to March'24.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
35.12	200000	17.04.1975 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely FOR HINDALCO INDUSTRIES LIMITED

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

Enclosure: - As above

CC: <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 : Pakhar Bauxite Mine (35.12 ha)
M/s Hindalco Industries Limited

**Environment Clearance No. &** 

date

: J-11015/137/2006-IA.II(M), dated 05.04.2007

Period of compliance Report : From 1st October'2023 to 31st March'2024

**Specific Conditions: -**

Condition i: - All the conditions stipulated by SPCB in their NOC shall be effectively implemented.

**Reply:** Implementation of the stipulated conditions in the NOC was fulfilled, after which consent to operate was obtained from time to time while the mine was operational.

Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition ii: - 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:** - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

The entire land was acquired in accordance with applicable laws while the mine was operational.

Condition iii: - Environmental clearance is subject to grant of forestry clearance, Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 3.45ha forestland shall be obtained before starting mining operation in that area.

**Reply:** - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition iv: - 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:** - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Shallow depth mining was carried out in the past; therefore, groundwater was not intersected during mining operations while the mine was operational.

Condition v: - The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operation.

**Reply:** - No natural water course was obstructed during mining operations in past. Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition vi: -Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

**Reply:** - Presently, The mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. There is no external OB dump in mine lease area.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition viii: - Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

**Reply:** - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition ix: - Plantation shall be raised in an area of 24.83ha 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:** - Already 32.85 ha has been planted in and around the mine/Plateau area.

Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

**Reply:** - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition xi: - 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 – premonsoon (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:** - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

**Reply:** - Presently, the mine has not been in operation as the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition xiii: - 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:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

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

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

Condition xv: - 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:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

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

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

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

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

Condition xviii: - The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition xix: - 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:** - Approval letter of Final Mine closure plan duly approved by Indian Bureau of Mines is hereby attached as **Annexure-1**.

#### **General Conditions**

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

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Data of the same are enclosed herewith as **Annexure 4.** 

Condition iii: - Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO<sub>2</sub>, NO<sub>X</sub> monitoring. Location of the stations should be decided based on the 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: - Monitoring Reports of Pakhar Plateau is enclosed as Annexure-2.

Condition iv: - Data on ambient air quality (RPM, SPM, SO<sub>2</sub>, NO<sub>x</sub>) 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: - Monitoring Reports of Pakhar Plateau is enclosed as Annexure-2.

Condition v: - 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:** - The winning of Bauxite is closed w.e.f 08.06.2009 due to exhaustion of resources. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition vi: - 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:** - The winning of Bauxite is closed w.e.f 08.06.2009 due to exhaustion of resources. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition vii: - Industrial wastewater (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December,1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Condition viii: - Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects. 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:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation.

The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

**Reply:** - The winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation. We have Environment Management Cell for our Pakhar Group of Mines. This cell is looking after Environment issues of this Mine. The copy of the same is attached herewith as **Annexure-3**. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

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

**Reply:** - The winning of bauxite is closed w.e.f. 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines.

Approval letter of Final Mine closure plan duly approved by IBM is hereby attached as **Annexure-1** 

Condition xi: - The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.

**Reply:** - Statement of budgetary provision and actual expenses for environmental protection measure is enclosed as **Annexure-5**. The final mine closure plan (FMCP) has been submitted and approved by Indian Bureau of Mines. Now, the Regional Office of MoEFC&CC is in Ranchi.

Condition xii: - The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend

full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

**Reply:** - Agreed. However, the winning of bauxite is closed w.e.f 08.06.2009 due to the exhaustion of mineral reserve. Therefore, the mine has not been in operation. Now, the Regional Office of MoEFC&CC is in Ranchi.

Condition xiii: - The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneshwar, Central Pollution Control Board and State Pollution Control Board.

**Reply:** - Being Complied. Six monthly reports on status of compliance of stipulated environmental clearance conditions are being submitted to the MoEFCC, Zonal office of CPCB and JSPCB Ranchi. Now, the Regional Office of MoEF&CC is in Ranchi.

Condition xiv: - 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:** - Already complied. A copy of clearance letter has already been submitted.

Condition xv: - 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:** - Already complied. The EC Letter has been submitted to JSPCB for display of same at its Regional office and other government offices.

Condition xvi: - 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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.

**Reply:** - Already complied. The information on grant of the EC has been published in two local newspapers. The copy of the advertisement has already been submitted to the Regional Office of the MoEFCC vide our letter no. HIL/GMO(M)/ENV/142 dated 23.05.2007. Now, the Regional office of MoEF&CC is in Ranchi.



#### **GOVERNMENT OF INDIA** MINISTRY OF MINES INDIAN BUREAU OF MINES OFFICE OF THE REGIONAL CONTROLLER OF MINES

Telephone: (0651) 2242889 (0651) 2242903 Fax: (0651) 2242903 E-mail: ro.ranchi@ibm.gov.in

RAN/LOH/BX/FMCP-02/2014-15.

318-B,Road No.- 3, Ashok Nagar, Ranchi - 834 002, Date: 93/04/2015

To: Shri A. K. Agarwal,

> Director cum Nominated Owner M/s HINDALCO Industries Ltd... Court Road, Lohardaga - 835 302 (Jharkhand).

Sub: Approval of Final Mine Closure Plan in respect of PAKHAR Bauxite Mines of M/s HINDALCO Industries Ltd. over an area of 38.95 hectares in village-Pakhar, Lohardaga district of Jharkhand State submitted under Rule 23C of MCDR, 1988.

Ref: Your A.G.M. (Geology) letters no. HIL/LHD/BX/IBM/245 Dated 02/08/2014 Your R.Q.P. letter nos. NIL, dated.03/11/2014 & 26/12/2014

This office letter no. रांची/लोहरदगा/बाक्साइट/एफ.एम.सी पी.-02/2014-15,दिनांक:26/09/2014

Sir.

In exercise of the powers conferred by the sub-rule 2 of Rule 23C of Mineral Conservation & Development Rules, 1988; I hereby approve the above said Final Mine Closure Plan in respect of PAKHAR Bauxite mines of M/s HINDALCO Industries Ltd. over an area of 38.95 hectares in village-Pakhar, Lohardaga district of Jharkhand State, submitted under Rule 23C of MCDR, 1988. This approval is subject to the following conditions: -

- that the Final Mine Closure Plan is approved without prejudice to any other laws applicable to the mine/lease area from time to time whether made by the Central Government, State Government or any other Authority.
- that this approval of the Final Mine Closure Plan does not, in any way, imply the approval of the Government in terms of any other provisions of the Mines & Minerals (Development & Regulation) Act, 1957 or the Mineral and any other laws including Concession Rules, 1960 (Conservation) Act, 1980, Environment (Protection) Act, 1986 and the rules made there under.

that the Final Mine Closure Plan is approved without prejudice to any order (iii) or direction from any court of competent jurisdiction.

- that the Regional Office, Indian Bureau of Mines, Ranchi shall be informed (iv) after completion of activities of final mine closure as per proposal of the Final Mine Closure Plan.
- that the Yearly report as required under Rule 23E(2) of MCDR 1988 setting (V) forth the extent of protection and rehabilitation works carried out as envisaged in the approved final mine closure plan and if there is any deviations, reasons thereof shall be submitted before 1st July of every year to the Regional office, Indian Bureau of Mines, Ranchi.

#### No.: RAN/LOH/BX/FMCP-02/2014-15.

(iv) The financial assurance submitted for Rs. 2,74,000/-(Two lacs seventy four thousand only) is valid up to 31/03/2016. A new bank guarantee is to be submitted on or before its expiry i.e. 31/03/2016, if the rehabilitation proposal not completed by the time.

Encl.: One copy of approved Final Mine Closure Plan.

Yours faithfully

Regional Controller of Mines

Copy forwarded for information to: -

1. The Director (Mines),

Directorate of Mines and Geology,
Government of Jharkhand,
Nepal House Area, Doranda.

Ranchi - 834 002. (Jharkhand), along with a copy of approved Final Mine Closure Plan. It is requested to ensure that the determination of aforesaid lease is not accepted unless and until a certificate issued by the Indian Bureau of Mines under Rule 29A (2) of Mineral Concession Rules, 1960 to the effect that protective, reclamation and rehabilitative works as envisaged in the approved Final Mine Closure Plan are carried out.

- 2. The Director of Mines Safety
  Ranchi Region
  CMPDIL-Campus
  3<sup>rd</sup> Floor, Old Building
  Kanke Road, Ranchi-834008
  along with a copy of approved Final Mine Closure Plan.
  - 3. Shri P.K. Sen, RQP, Kali Mandir Road, Doranda, Ranchi - 834 002.

(R. Purohit)
Regional Controller of Mines

## ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Pakhar (15.58) Bauxite Mine-Environmental Monitoring Report

October 2023



## CONTENT

Mine	rals & Minerals ; Pakhar (15.58)	Environmental Monitoring Report	October 2023
		Pakhar (15.58)	
	AMBIENT AIR QUALITY- COR	E ZONE	
1	Near Mine Office	100000-1000	
2	Near Weigh Bridge		
3	Near Mine Quarry No-M1		
4	Near Mine Quarry No-M4		
	AMBIENT AIR QUALITY- BUFF	FER ZONE	
1	Near Bunglapart Village	71.20.21.21.21.20.00	
2	Yatri Shed (Near K-10)		
3	Near Utkarmit Rajkiya Prathmik Vid	yalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vid		







PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-20AA5CE9713D1Z4

#### 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/2023/4417	Report Release Date	2 22.11.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3943 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.10.2023 to 16.10.2023 : 28.10.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	= 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	; ELES Pvt. Ltd. : Sealed & Preserved

METEOROLOGICAL INFORMATION						
T	Average Temperature (°C)	25	2	Barometric Pressure (mmHg)	: 736	
3	Relative Humidity (%)	: 57	4	Weather Condition	: Clear	
5	Longitude	: 84°36'36,29"E	6	Latitude	: 23°32'24.04"N	

Discipline : Chemica	al.	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m <sup>2</sup>	IS 5182 (Part-23): 2006; RA2022	54	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	26	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>2</sup>	IS 5182 (Part-2): 2001; RA2022	5,8	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	20.1	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>3</sup>	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/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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

#### ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.ca.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4417	Report Release Date	: 22.11.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

Discipline: Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>5</sub> H <sub>6</sub> )*	μg/m <sup>2</sup>	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	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. Ud. Technical Manager

Page 2 of 2

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PLDT 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/2023/4418	Report Release Date	: 22.11.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3944 : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.10.2023 to 16.10.2023 : 28.10.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	157	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline : Chemica	ıl	Group : A	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/in <sup>3</sup>	1S 5182 (Part- 24): 2019	33	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6); 2006; RA2022	23.5	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	JS 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/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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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/2023/4418	Report Release Date	: 22,11,2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

Discipline: Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>s</sub> H <sub>s</sub> )*	μg/m <sup>λ</sup>	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.

Reviewed by:

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

Authorised Signatory

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

Page 2 of 2

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

#### ENGINEERING SERVICES PYT. LTD.

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Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4419	Report Release Date	: 22.11.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	; 31.03.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3945 : Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.10.2023 to 16.10.2023 : 28.10.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	:57	4	Weather Condition	: Clear
5.	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

Discipline : Chemica	ıl	Group : A	Group: Atmospheric 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 <sub>2</sub> )	μg/m²	IS 5182 (Part-2): 2001; RA2022	7.1	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	21.3	80 (24hrs)			
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NH <sub>3</sub> )	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)			

#### Page 1 of 2

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Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4419	Report Release Date	: 22.11.2023	
Work Order No.	; M&M/23-24/01	Work Order Date	: 31.03.2023	

Discipline: Chemi	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m <sup>1</sup>	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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Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4420	Report Release Date	: 22.11.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	31.03.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	† Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2023/AA/3946	
		Location	: Near Mine Quarry No-M4	
	No. of the last of		Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 15.10,2023 to 16,10,2023	
		Sample Received Date	: 28.10.2023	
		Type of Sample	Ambient Air	
Mines Status	; Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Bodad of Kashada	: 28.10.2023 to 09.11.2023	Sample Drawn By	ELES Pvt. Ltd.	
Period of Analysis	7 28.10.2023 10 09.11.2023	Sample Condition	Sealed & Preserved	

M	ETEOROLOGICAL INFO	RMATION	9		
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mm)	Hg) 736
3	Relative Humidity (%)	: 57	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

Discipline : Chemica	il	Group: A	tmospheric	Pollution
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)	$\mu g/m^3$	IS 5182 (Part-24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6,3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.8	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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	0.014	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) GST NO:- 20AAECE9713D124

#### ENGINEERING SERVICES PVT. LTD.

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Website : www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4420	Report Release Date	: 22.11.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31,03,2023	

Discipline : Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m¹	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m <sup>1</sup>	IS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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

Reviewed by

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

Authorised Signatory

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

#### Page 2 of 2

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PLOT NO 30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (HARKHAND) GST NG-30A86097130124 ENGINEERING SERVICES PVC LED.

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4425	Report Release Date	: 22.11.2023	
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/3951 Near Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 14.10.2023 to 15.10.2023 : 28.10.2023
Mines Status	; Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Condition	: Scaled & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 25	2	Barometric Pressure (mmi	Hg) : 734	
3	Relative Humidity (%) 57	4	Weather Condition	: Clear	

Discipline : Chemica	d	Group: Atmospheric Poliution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	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 <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	5.5	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.7	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	µg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>3</sup>	18 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	ug/m²	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	D6 (Amual)	

#### Page Lof 2

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FLOT NG-30, MANSARGVAR ENCLAVE, TUPUDANA HATIA. RANCHI-834003 (IHARKHAND) BST HO: 2044ECE97130124 WINEERING SERVICES PET, ATU.

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/2023/4425	Report Release Date	: 22.11,2023	
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 <sub>6</sub> H <sub>6</sub> )*	μg/m³	IS 5182 (Part-11)2006;RA2017	<1.0	05(Annual)	
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	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

Pr. D Environmental Engo ELES Put. Ltd. Technical Manager

Page 2 of 2

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PLOT NG-30, MANUARDVAR ENCLAYS, TUPLIDANA HATLA, RANCHI-BERLIOS (JHARKHAND) 5ST NO:- 20AAECESTLEDIZA

## ENGINEERING SERVICES PVT. LTG.

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/2023/4426	Report Release Date	2 22.11.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DETAILS  Customer Name : Hindalco Industries Limited			SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/3952 : Yatri Shed (Near K-10) Pakhar Bauxite Mine		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: Ambient Air		
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Condition	: Sealed & Preserved		

M	ETEOROLOGICAL INFO	MATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 57	4	Weather Condition	: Clear

Discipline: Chemica	al	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	26	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>1</sup>	IS 5182 (Part-2); 2001; RA2022	5.9	80 (24hrs)	
Nitrogen Di-Oxíde (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)	
Ozone (U <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>1</sub> )	ug/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>†</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8brs)	
Lead (Pb)	μg/m <sup>2</sup>	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 (Amust)	

Page 1 of 2

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PLOT NO-30, MANSAROVAN ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) 85T NO:- 30448(5897130124

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DRING SERVICES PVY, LYD.

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4426	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

Discipline: Chemi	icat	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	pg/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

Ph D Environmental Engo ELES Pvr LM. Technical Manager

Page 2 of 2

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PLOT NO-36, MANSAROVAR ENCLAVE, TUPDDANG HATIA, RANCH-834003 (HARNHAND) GST NO-20A450517100131

## ENGINEERING SERVICES PVT. LTO.

Email: Info@elespl.ca.in eles.ranchi@amail.com Phane no.: 0651-2290103 Websitz: www.clespl.co.in

TEST REPORT

Test Report No.	: ELES/RNC/2023/4427	Report Release Date	: 22.11.2023	
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/3953 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar Bauxite Mine : 14.10:2023 to 15.10:2023 : 28.10:2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION				
1	Average Temperature (°C) : 25	12	Barometric Pressure (mm)	Hg) : 734	
3	Relative Humidity (%) : 57	4	Weather Condition	Clear	

Discipline: Chemica	il	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	49	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	25	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.9	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	18.5	80 (24hrs)		
Ozone (O <sub>1</sub> )	µg/m³	1\$ 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>1</sub> )	µg/m³	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m <sup>3</sup>	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/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)		

Page 1 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TURUDANA HATIA, RANCHI-834003 (JHARKHAND) GST WO: 20AAECE9718D124

CERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4427	Report Release Date	: 22.11.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

Discipline: Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocoi	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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

r Deependra Kumar sinha Ph. D. Environmental Enga ELES Pyt. Ltd. Technical Manager

Page 2 of 2

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#10T NO 30, MANESTIOVAE ENCOVE TUPUDANA HATIA, PANCHI-133008 (HHIRKHAND) GST NO-10MAECEST130124

email info@elespi.co.in eles ranchi@email.com

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4428	Report Release Date	: 22.11.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name  Address	† Hindalco Industries Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/3954     Near Utkarmit Rajkiya Prathmik     Vidyalaya Dumrapart Village     Pakhar Bauxite Mine	
Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 14.10.2023 to 15.10.2023 : 28.10.2023 : Ambient Air : ELES/DOC/SMPL/02	
	1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Sample Drawn By	ELES Pvt. Ltd.	
Period of Analysis	: 28.10.2023 to 09.11.2023	Sample Condition	: Scaled & Preserved	

MI	TEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 25	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 57	4	Weather Condition	: Clear

Discipline: Chemica	1	Group:	Atmospheric :	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23); 2006; RA2022	55	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	5.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	10.5	80 (24hrs)
Ozone (O <sub>2</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m <sup>2</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m²	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	1S 5182 (Part-26):2020	<6,0	20 (Annuel)
Arsenie (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)

#### Page I of Z

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PLOT NO-30, MANSARDVAR ENCLAVE, TUPUDANA HATTA, RANCHI-834003 (JHARKHAND) GST NO:-20AAECE9713D153 ENGINEERING SERVICES POT. 520.

Emall: Info@elespt.co.in , elestranchi@omnil.com Phone na.: 0651-2230103 Website : www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4428	Report Release Date	: 22.11.2023	
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 <sub>6</sub> H <sub>6</sub> )*	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.

Reviewed by

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

Authorised Signatory

To Deependra Kumar Sinha

Ph. G. Environmental Enga

ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Pakhar (15.58) Bauxite Mine-Environmental Monitoring Report

November- 2023



## CONTENT

Mine	rals & Minerals : Pakhar (15.58)	Environmental Monitoring Report	November- 2023
		Pakhar (15.58)	
	AMBIENT AIR QUALITY- COR	E ZONE	
1	Near Mine Office		
2	Near Weigh Bridge		
3	Near Mine Quarry No-M1		
4	Near Mine Quarry No-M4		
	AMBIENT AIR QUALITY- BUFF	ER ZONE	
1	Near Bunglapart Village		
2	Yatri Shed (Near K-10)		
3	Near Utkarmit Rajkiya Prathmik Vid	yalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vid	yalaya Dumrapart Village	
	DRINKING WATER		





PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (JHARKHAND). GST NO:- 20AAECE971301Z4



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



TEST REPORT

Test Report No.	: ELES/RNC/2023/4760	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	To a live to the same of the s
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4230 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 15.11.2023 to 16.11.2023 : 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Procedure Sample Drawn By	: ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved

м	CTEOROLOGICAL INFOR	MATION			
	Average Temperature (°C)	man of the second second	2	Barometric Pressure (mmHg)	: 736
_	Relative Humidity (%)	:51	4	Weather Condition	: Clear
-		: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N
5	Longitude	: 04 30 30 %3 C	1 62	investigate.	

Discipline: Chemica	d	Group : A	tmospheric	
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	29	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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	0.016	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)

Reviewed by

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

Authorised Signatory Deependra Kumar Sinha

Page 1 of 1

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

GST NO:- 20AAECE9713D1Z4

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/2023/4760	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4230 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 15.11.2023 to 16.11.2023 : 24.11.2023 : Ambient Air
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 20	2	Barometric Pressure (mmHg)	: 736
_	Relative Humidity (%) : 51	4	Weather Condition	: Clear
5	Longitude : 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

Discipline : Chemical		Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	1S 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	1S 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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

AL EN Reviewed by

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

Authorised Signatory

Dr. Deependra Kumar Sinha Ph D Environmental Engo

...ES Pvt. Ltd. Technical Management

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.co.in , eles,ranchi@gmail.com

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4761	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	; 31.03.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4231 : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.11,2023 to 16.11,2023 : 24.11,2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	; 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 51	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	123°32'26.21"N

Discipline : Chemica	I	Group: A	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	76	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	38	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	1S 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	μg/m <sup>1</sup>	IS 5182 (Part-6): 2006; RA2022	25.4	80 (24hrs)		
Ozone (O <sub>1</sub> )	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>1</sub> )	μg/m <sup>†</sup>	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	0.021	1 (24hrs)		
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)		
Aisenic (As)	ng/m	ELES/AIR/SOP/01	<2.0	05 (Amual)		

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

Dr. Deeperler Signetura Sinha

Ph. D. Environmental Energ

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE971301Z4 ENGINEERING SERVICES PVT. LTD.

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4761	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	MLS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4231 : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.11,2023 to 16.11.2023 : 24.11,2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	736
3	Relative Humidity (%)	: 51	-4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	1S 5182 (Part-11)2006;RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	IS 5182 (Part-12)2004;RA2019	< 0.5	OI(Annual)		

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

Reviewed by

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

Authorised Signatory
Geografica Kurnar Sinha
D Environmental Engg.

Pvt. Ltd. Technical Manager

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



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



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TEST REPORT

Test Report No.	: ELES/RNC/2023/4762	Report Release Date	: 21,12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4232 : Near Mine Quarry No- MI Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.11.2023 to 16.11.2023 : 24.11.2023 : Ambient Air
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORMATION	-		ma d
	Average Temperature (°C) ; 20	2	Barometric Pressure (mmHg)	: 736
2	Relative Humidity (%) : 51	1.4	Weather Condition	Clear
2	Longitude : 84°36'6,67"E	6	Latitude	: 23°32'9.19°N

Discipline : Chemica	ľ	Group: A	tmospheric	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	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	1S 5182 (Part-6): 2006; RA2022	23.5	80 (24hrs)
Ozone (O <sub>5</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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 <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	0.008	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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Page 1 of 1 ELES Pvt. Ltd. Technical Manag

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

GST NO:- 20AAECE9713D1Z4

GINEERING SERVICES PVT. LTD.

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4762	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET/	AILS	SAMPLE DETAILS		
Customer Name	7 Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4232 : Near Mine Quarry No- MI Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 15.11.2023 to 16.11.2023 : 24.11.2023 : Ambient Air	
Mines Status	Operational	Sampling Procedure Sample Drawn By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION	-		
1	Average Temperature (°C)	:20	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	:51	4	Weather Condition	: Clear
5	1 desident	: 84°36'6.67"E	6	Latitude	23°32'9.19"N

Discipline : Chem	ical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzené (C <sub>6</sub> H <sub>6</sub> )*	pg/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\*\*\*\*

Authorised Signatory

Dr. Deependra Kumar Sinhu Ph. D Environmental Engg. ELES Pvt. Ltd. Technical Mana:

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

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4763	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03,2023	

CUSTOMER DETA	MLS	SAMPLE DETAILS			
Customer Name	; Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4233 : Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.11.2023 to 16.11.2023 : 24.11.2023		
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02		
Period of Analysis	: 24.11.2023 to 08.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved		

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	:51	4	Weather Condition	: Clear
5	Longitude	: 84°36'8,99"E	6	Latitude	: 23°32'13.12'N

Discipline : Chemies	ıl	Group : A	Group: Atmospheric 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	33	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	6.9	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	24,1	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m <sup>‡</sup>	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/m <sup>2</sup>	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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Authorised Signatory

Dr. Deependra Kumar Sinha

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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/2023/4763	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03,2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4233 : Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 15.11.2023 to 16.11.2023 : 24.11.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 24,11,2023 to 08,12,2023	Sample Drawn By Sample Condition	; Sealed & Preserved

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 736
3	Relative Humidity (%)	: 51	4.	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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 Sinhu
Ph. D Environmental Engg.

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Page 1 of 1

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

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Website: www.elespt.ca.in



#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4768	Report Release Date	: 21.12.2023
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	: ELES/RNC/2023/AA/4238
		Location	; Near Bunglapart Village
			Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 14.11.2023 to 15.11.2023
	Comment of the state of the sta	Sample Received Date	: 24.11.2023
		Type of Sample	: Ambient Air
ALC: NO.	- Chamberry	Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Condition	Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) :21	2	Barometric Pressure (mm	Hg) : 734
_	Relative Humidity (%) : 53	4	Weather Condition	: Clear

Discipline : Chemica	ıl	Group: Atmospheric Pellution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	jug/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 <sub>2</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	6.1	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part-6): 2006; RA2022	16.8	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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)	ug/m³	[5 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)		
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Ammal)		
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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Dr. Deependra Kumar Sinha

Page 1 of 1

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

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Website : www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4768	Report Release Date	: 21.12.2023	
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/4238 : Near Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 14.11.2023 to 15.11.2023 : 24.11.2023
Mines Status	; Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORM	IATION			
1	Average Temperature (°C)	21	2	Barometric Pressure (mm)	Hg) : 734
3	Relative Humidity (%)	53	4	Weather Condition	: Clear

Discipline: Chemi	ent	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Beazene (C <sub>8</sub> H <sub>6</sub> )*	μg/m <sup>3</sup>	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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CNY: U71999W12018F70811133

#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4769	Report Release Date	: 21.12.2023	
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/4239 : Yatri Shed (Near K-10) Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	= 14.11.2023 to 15.11.2023 = 24.11.2023	
Mines Status	: Operational	Type of Sample Sampling Procedure Sample Drawn By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pyt. Ltd.	
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Condition	: Scaled & Preserved	

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 21	2	Barometric Pressure (mml	Hg) : 734
3	Relative Humidity (%) : 53	4	Weather Condition	; Clear

Discipline: Chemica	ıl	Group: 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	IS 5182 (Part- 24): 2019	28	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	(S 5182 (Part-2): 2001; RA2022	6.3	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.6	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Arumonia (NH <sub>2</sub> )	ma/ut <sub>3</sub>	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	ng/m³	(\$ 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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#### TEST REPORT

Test Report No.	± ELES/RNC/2023/4769	Report Release Date	: 21.12.2023	
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/4239 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 14.11.2023 to 15.11.2023 : 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sample Drawn By	: ELES Pvi. Lid.
Period of Analysis	: 24.11,2023 to 09.12.2023	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFOI	RMATION				
1	Average Temperature (°C)	121	2	Barometric Pressure (mml	Hg) : 734	
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear	

Discipline : Chemi	cal	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m <sup>7</sup>	IS 5182 (Part-11)2006; RA2017	<1.0	05(Annual)		
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	fS 5182 (Part-12)2004;RA2019	<0.5	01(Annual)		

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

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

Page 1 of 1

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TEST REPORT

Test Report No.	: ELES/RNC/2023/4770	Report Release Date	: 21.12.2023
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	ELES/RNC/2023/AA/4240  Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine  14.11.2023 to 15.11.2023  24.11.2023  Ambient Air
Mines Status	: Operational	Sampling Precedure	: ELES/DOC/SMPL/02
Period of Analysis	; 24,11,2023 to 09,12,2023	Sample Drawn By Sample Condition	: ELES Pvt, Ltd. : Sealed & Preserved

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) ; 21	2	Barometric Pressure (mm)	Hg) : 734
	Relative Humidity (%) : 53	4	Weather Condition	: Clear

Discipline : Chemica	d	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m³	15 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 <sub>2</sub> )	µg/m³	1S 5182 (Part-2): 2001; RA2022	5.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	16.7	80 (24hrs)	
Ozone (O <sub>1</sub> )	μg/m <sup>7</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>2</sub> )	μg/m³	1S-5182 (Part- 25); 2018	<10.0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m <sup>2</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)	
Lead (Pb)	µg/m²	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m³	(S 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenie (As)	ng/m³	ELES/AIR/SOP/01	<2,0	06 (Annual)	

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Dr. Deependra Rumar Sinha

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATTA, RANCHI-834063 (JHARKHAND) 65T NO:- 20AAECES71301Z4

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4770	Report Release Date	; 21.12.2023	
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/4240 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar Bauxite Mine : 14.11.2023 to 15.11.2023 : 24.11.2023
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Drawn By Sample Condition	ELES Pvt. Ltd. Sealed & Preserved

M	ETEOROLOGICAL INFORT	MATION			
1	Average Temperature (°C)	: 21	2	Barometric Pressure (mmHg)	; 734
3	Relative Humidity (%)	: 53	4	Weather Condition	: Clear

Discipline: Chemi	ся1	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>4</sub> )*	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
Pn. D Environmental Engg
ES Pvt. Ltd. Technical Manager

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4771	Report Release Date	: 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited : Lohardaga, Jharkhand-835302	Sample Ref. No. Location	: ELES/RNC/2023/AA/4241 : Near Utkannit Rajkiya Prathmil Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Mines Status	: Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 14.11.2023 to 15.11.2023 : 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	; 24.11.2023 to 09.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

VII	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) 21	2	Barometric Pressure (mm	iHg) ; 734
3	Relative Humidity (%) : 53	4	Weather Condition	: Clear

Discipline : Chemica	el l	Group : Atmospheric 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	24	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	(S 5182 (Part-6): 2006; RA2022	17.2	80 (24hrs)	
Ozone (O <sub>1</sub> )	μg/m <sup>2</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs).	
Ammonia (NH <sub>1</sub> )	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 <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)	
Nickel (Ni)	ng/m²	1S 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\*\*\*

Authorized Signatory Dr. Deependra Kumar Sinha

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#### TEST REPORT

Test Report No.	: ELES/RNC/2023/4771	Report Release Date	; 21.12.2023	
Work Order No.	: 13612310218	Work Order Date	: 21,04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name Address	: Hindalco Industries Limited : Luhardaga, Jharkhand-835302	Sample Ref. No. Location	ELES/RNC/2023/AA/4241     Near Utkarmit Rajkiya Prathmil Vidyalaya Dumrapart Village Pakhar Bauxite Mine	
Mines Status	: Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 14,11.2023 to 15.11.2023 : 24.11.2023 : Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 24.11.2023 to 09.12.2023	Sample Drawn By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFORM	ATION			
1	Average Temperature (°C)	21	2	Barometric Pressure (mml	Ig) : 734
3	Relative Humidity (%)		4	Weather Condition	: Clear

Discipline: Chemi	cal	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	µg/m <sup>3</sup>	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\*\*\*\*

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Dr. Deependra Kumar Sinha Pn. D Environmental Engg ELES Pvi. Ltd. Technical Manager

Page 1 of 1

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### ENGINEERING SERVICES PUT. LTD.

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Phone no.: 0551-2290103 Website: www.elespi.co.in

#### TEST REPORT

Test Report No.	: ELES/RAN/2023/3132	Report Release Date	: 21.12.2023	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RAN/2023/DW/3019 : 20.11.2023 : 24.11.2023	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Source/Location of Sample	Drinking Water Near Mine Office Pakhar (15.58 ha) Bauxite Mine	
Mines Status	: Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.	
Period of Analysis	= 24.11.2023 to 08.12.2023	Sample Condition	: Sealed & Preserved	

Discipline : Chem	ical	Group : Water	Regulatory Limit as per IS 10500:2012		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.6 °C)	14.1	APHA 23 <sup>rd</sup> Ed.2017, 4500-H	6.82	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23 <sup>rd</sup> Ed,2017, 2130 B	0.68	1.0	5.0
Taste-	2.	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23rd Ed,2017, 2120B&D	2.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2540B,C&D	184	500	2000
Chloride (as Cl)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 C1 B	26.8	250	1000
Fluoride (as F)	mg/L	APHA 23rd Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO3)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2320 B	74.8	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L.	APHA 23rd Ed.2017, 2340 C	68.4	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23rd Ed.2017, 4500 SO <sub>4</sub> -2-E	12.8	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>3</sub> -B	1.28	45	No Relaxation
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> 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-834003 (HARKHAND) GST NO:- 20AAECE9713012A

### ENGINEERING SERVICES PVT. LTD.

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

#### TEST REPORT

 Test Report No.
 : ELES/RAN/2023/3132
 Report Release Date
 : 21.12.2023

 Work Order No.
 : M&M/23-24/01
 Work Order Date
 : 31.03.2023

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 <sup>rd</sup> Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Residual Free Chlorine (RFC)	mg/L	1S 3025 (Part-26):2021	(DL: 0.1)	0.02	1.0
Calcium (as Ca)	mg/L	APHA 23th Ed.2017, 3500 Ca B	18,4	75	200
Discipl	ine: Che	mical Group	: Residues in	Water	
Aluminum (as AI)	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 <sup>rd</sup> 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 23 <sup>rd</sup> Ed.2017, 3111B	0.286	1.0	1.0
Lead (as Pb)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> 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
Selenlum (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 <sup>rd</sup> 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:- 20AAECE9713D1Z4

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#### TEST REPORT

: 21.12.2023 Report Release Date : ELES/RAN/2023/3132 Test Report No. ± 31.03.2023 Work Order No. : M&M/23-24/01 Work Order Date

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*	pg/L	APHA	BDL (DL: 1.0)	2
Aldrin/Dieldrin*	µg/L	APHA	BDL (DL; 0.01)	0.03
Alpha HCH*	µg/L	АРНА	BDL (DL: 0.001)	0.01
Beta HCH*	µg/L	АРНА	BDL (DL: 0.01)	0.04
Butachlor*	μg/L	APHA	BDL (DL: 10)	125
Chlorpyriphos*	μg/L	АРНА	BDL (DL: 10)	30
Delta HCH*	μg/L	APHA	BDL (DL: 0.01)	0.04
2,4 dichlorophenoxyacetic acid*	µg/L	APHA	BDL (DL: 10)	30
DDT(o,p and p,p-isomers of DDT,DDE and DDD)*	µg/L	АРНА	BDL (DL: 0.5)	T.
Endosulfan (alpha, beta, and sulphate)*	μg/L	АРНА	BDL (DL: 0.1)	0.4
Ethion*	µg/L	APHA	BDL (DL; 0.5)	3
Gamma HCH (Lindane)*	μg/L	APHA	BDL (DL: 0.5)	2
Isoproturon*	μg/L	APHA	BDL (DL: 0.5)	9

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

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#### TEST REPORT

Test Report No.	: ELES/RAN/2023/3132	Report Release Date	: 21.12.2023	
Work Order No.	t M&M/23-24/01	Work Order Date	: 31.03.2023	

Discipline : B	iological	Group: 3	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	Shall not be detected	
Escherichia Coli (E. Coli)	Per 100 mL	IS 15185;2016; RA 2021	Not Detected Shall not be de		ne detected
Discipline :	Chemical	Group:	Water	The second secon	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 <sup>rd</sup> 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: 1, (\*) Parameters are outsourced to other Lab.

ges & Eng

Reviewed by

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

Dr. Deeperiara Rismar Sinha
Ph. D Environmental Engg.
ELES Pvt. Lid. Technical Manager

Page 4 of 4

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## ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Pakhar (15.58) Bauxite Mine-Environmental Monitoring Report

December 2023



### CONTENT

Mine	erals & Minerals : Pakhar (15.58)	Environmental Monitoring Report	December 2023
		Pakhar (15.58)	
	AMBIENT AIR QUALITY- COR	E ZONE	
1	Near Mine Office		
2	Near Weigh Bridge		
3	Near Mine Quarry No-M1		
4	Near Mine Quarry No-M4	A Laboratory of the Control of the C	2-2-
	AMBIENT AIR QUALITY- BUFF	FER ZONE	
1	Near Bunglapart Village	PO10PO.079 11.17 *	
2	Yatri Shed (Near K-10)		
3	Near Utkarmit Rajkiya Prathmik Vic	lyalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vic	Ivalava Dumrapart Village	





PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D12#



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TEST REPORT

Test Report No.	: ELES/RNC/2024/0231	Report Release Date	: 15.01.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	Ī

ULR No. : TC883924000000214F

Reviewed by

31	Report Release Date	: 15.01.2024	-
	Work Order Date	: 31.03.2023	-
CE.			

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	; Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4891 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.12.2023 to 24.12.2023 : 30.12.2023	
		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd. : Sealed & Preserved	
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition		

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	20	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

Discipline: Chemica	il	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	64	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	32	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	25.2	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m²	1S 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/m <sup>3</sup>	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

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

### ENGINEERING SERVICES PVT. LTD.

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0231	Report Release Date	: 15.01,2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	ELES/RNC/2023/AA/4891 Near Mine Office Pakhar (15.58 ha) Bauxite Mine	
Address	± Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	23.12.2023 to 24.12,2023 30.12.2023 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	□ Operational	Sampling Procedure Sampling Done By	ELES Pvt. Ltd.	
Period of Analysis	= 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	; 20	2	Barometric Pressure (mmHg)	: 738	
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear	
5	Longitude	: 84°36'36.29"E	6	Latitude	: 23°32'24.04"N	

Discipline : Chem	ical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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.



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

Ph. D Environmental Engg ELES Pvt Ltd. Technical Manager

Page | of 1

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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0232	Report Release Date	: 15.01.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883924000000215F		

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4892 : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.12.2023 to 24.12.2023 : 30.12.2023	
		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd. : Scaled & Preserved	
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition		

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (6C)	: 20	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 48	4	Weather Condition	; Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline: Chemica	al	Group:	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23); 2006; RA2022	80	100 (24hrs)			
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	46	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	9.4	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	1S 5182 (Part-6): 2006; RA2022	27.1	80 (24hrs)			
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
Ammonia (NH <sub>3</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)			
Lead (Pb)	µg/m²	IS 5182 (Part-22): 2004; RA2019	0.018	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)			

Reviewed by

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

DA What ised Signatory

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@amail.com

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0232	Report Release Date	: 15.01.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4892 : Near Weigh Bridge
Address	: Lohardaga, Harkhand-835302	Sampling Date	Pakhar (15.58 ha) Bauxite Mine : 23.12.2023 to 24.12.2023
(V. A. CARLO, A1179-1)		Sample Received Date	: 30.12.2023
48 (1800)	(Minerio)	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Mines Status	: Operational		The state of the s
Period of Analysis	: 30.12,2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	738
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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\*\*\*\*

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: 20AAECES7130174

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0233	Report Release Date	: 15.01.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03,2023
ULR No.	: TC883924000000216F		

CUSTOMER DETA	MLS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4893 : Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Address	_ Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.12.2023 to 24.12.2023 : 30.12.2023
Mines Status	- Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

Discipline : Chemica	1	Group: A	Group: Atmospheric 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	36	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	11.5	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6); 2006; RA2022	25.1	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>2</sub> )	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	0.01	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)		

Reviewed by

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

Authorised Signatory Dr. Deependra Kumar Sinna

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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/2024/0233	Report Release Date	: 15,01,2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETA	MLS	SAMPLE DETAILS	
Customer Name	Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4893 : Near Mine Quarry No- MI Pakhar (15,58 ha) Bauxite Mine
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 23.12.2023 to 24.12.2023 : 30.12.2023 : Ambient Air
Mines Status	Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvl. Ltd.
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (*C)	: 20	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	:48	-4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	; 23°32'9.19"N

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Bertzene (C <sub>6</sub> H <sub>a</sub> )*	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	O1(Annual)		

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



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

Dr. Deependia Kumar Sinha Ph. D Environmental Enga.

ELES Pvi. Ltd. Technical Manager

Page I of I

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0234	Report Release Date	: 15.01.2024
Work Order No.	2 M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883924000000217F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	and the same of the same
Customer Name	; Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4894 : Near Mine Quarry No-M4 Pakhar (15,58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.12.2023 to 24.12.2023 : 30.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

Mi	ETEOROLOGICAL INFOR	RMATION		value of the same	
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	± 738
3	Relative Humidity (%)	: 48	4	Weather Condition	; Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	; 23°32'13.12"N

Discipline : Chemica	d	Group: Atmospheric 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	36	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	7.7	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	26.4	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	1S 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/m <sup>2</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)		
The second of the second						

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

Page 1 of 1

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duthorised Signatory or. Deependra Kumar Sinna

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

### ENGINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0234	Report Release Date	: 15.01.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4894 : Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 23.12.2023 to 24.12.2023 : 30.12.2023	
		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 20	2	Barometric Pressure (mmHg)	738
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear
5	Longitude	: 84"36'8.99"E	6	Latitude	: 23°32'13.12"N

Discipline: Chemical		Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	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\*\*\*\*

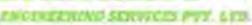
Authorised Signatory
Dr. Deependra Kumar Sinna
Ph. D Environmental Engg.
ES Pvt. Ltd. Technical Manager.

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PLOT NO 30, MANSAROVAR ENCLAVE, TUPLICANA HATIA, RANCHI-834003 (IHARKHAND) BST NO:- 284AECE9718D124



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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0239	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000222F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	SAMPLE DETAILS		
Customer Name	: Hindulco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4899 : Near Bunglapart Village Pakhar Bauxite Mine		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 22.12.2023 to 23.12.2023 : 30.12.2023 : Ambient Air		
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	: 30.12,2023 to 13.01,2024	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	:19	2	Barometric Pressure (mmHg)	734
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline : Chemics	al	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	56	100 (24hrs)		
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	28	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m²	IS 5182 (Part-2); 2001; RA2022	7.4	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	дg/m³	IS 5182 (Part-6): 2006; RA2022	19.2	80 (24hrs)		
Ozone (O <sub>2</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	IS 3182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>a</sup>	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Pb)	μg/m³.	IS 5182 (Part-22): 2004; RA2019	< 0.002	I (24hrs)		
Nickel (Ni)	ng/m³	1S 5182 (Part-26):2020	<6.0	20 (Annual)		
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)		

Reviewed by

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

Authorised Signatory

Dr. Deependra Kumar Sin. u

Ph. D Environmental Engg.

Page 1 of 1 CLES PVI Ltd. Technical Manage

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PLOT NO-SO, MAKSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST-NO:- 2044ECE97130124 Email: info@elespl.co.in , eles ranchi@amail.com

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0239	Report Release Date	: 15.01.2024	
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/4899	
		Location	: Near Bunglapart Village Pakhar Bauxite Mine	
		Sampling Date	: 22.12.2023 to 23.12.2023	
Address	: Lohardaga, Jharkhand-835302	Sample Received Date	: 30.12,2023	
		Type of Sample	: Ambient Air	
		Sampling Procedure	: ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	= 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	19	2	Barometric Pressure (mmHg)	=734
3	Relative Humidity (%)	48	4	Weather Condition	Clear

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	IS \$182 (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.



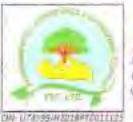
\*\*\*\*End of Report\*\*\*

Authorised Signatory
Dr. Deependra Kumar Sinna

Ph. D Environmental Engg. ELES PVL Ltd Technical Manager

Page | of 1

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PLOT NO-30, MANSAROVAR ERELAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-30AAECE9713D121

#### INVESTIGATION OF STREET

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

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



TEST REPORT

Test Report No.	: ELES/RNC/2024/0240	Report Release Date	: 15.01,2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	; TC883924000000223F		

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4900 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	: Lohardaga, Tharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 22.12.2023 to 23.12.2023 : 30.12.2023 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	; ELES PVL Ltd.
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	:19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	; 48	4	Weather Condition	: Clear

Discipline : Chemica	al	Group: 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	33	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	7.5	80 (24hrs)		
Nitrogen Di-Oxide (NO2)	µg/m³	IS 5182 (Part-6): 2006; RA2022	23.3	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	h8/m <sub>1</sub>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>1</sup>	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)		

Reviewed by

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

Authorised Signatory

Dr. Daependra Kumar Sirina

Ph. D Environmental Enga

Page 1 of 1

ELES PVC Ltd. Technical Menager

The Deciment stated as Tex Separt, entired by the Laboratory under German Terms and Conditions, only on Company letter head in pre-approved format. The results shown in the Text Report reflet or relates only to the jobannalysis done by the Laboratory only. The information stated on the Text Report reflects the findings done by the Laboratory at the time of involvention control and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Laboratory. The Report in full or in part shall not be published, aftertise, used for any legal actions unless prior permission has been secured from the Managament of the Laboratory. Attention is drawn to the limitation in flability, compensation and jurisdiction issues. Any unauthorized alteration & full-information of the Content or appearance of the Text Report is inflawful and offenders may be prosecuted to the fullest extent of the law. All the samples are restricted for Judges from the Date of release/result of the Text Report. The samples from Regulatory bodies are to be returned as specified. Any type of Observations or Complains regarding the Reports shall be done within 15days from the Date of Text Report releases/result. After the time period stated before, no complaints will be accepted. The earlier Time schedule mentioned in Text Report is in 24bours format. Abbreviation used. N/A (Not Applicable), BDL (Below Detection Limit), LDL (Lower Detection Limits).



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHANO) GST NO:-20AAECESTESDIZ4 Email: info@elespl.co.in , eles.ranchi@omail.com

Phone nor: 0651-2298103 Website: www.elespi.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0240	Report Release Date	: 15.01.2024	
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/4900 : Yatri Shed (Near K-10) Pakhar Bauxite Mine	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 22.12.2023 to 23.12.2023 : 30.12.2023 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	; 19	2	Barometric Pressure (mmHg)	= 734
3	Relative Humidity (%)	: 48	4	Weather Condition	Clear

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>4</sub> H <sub>6</sub> )*	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 a

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

Authorised Signatory

Or. Deepend a Komer Similal Ph. D Environmental Engo ELES Pvt. Ltd. Technical Mansh

Page I of 1

The Document stated as Test Report, is usually by the Laboratory ander General Terms and Conditions, only on Company letter head in pre-approved format. The results shown in the Test Report reflects the findings done by the Laboratory of the information stated on the Test Report reflects the findings done by the Laboratory of the time of avolvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without point written approval of the Laboratory. The Report is that in or in part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Laboratory. Attention is grawn to the limitation of liability, compensation and jurisdiction issues. Any unauthorized alteration & falsification of the content of appearance of the Test Report is unlessful and offenders may be preseduced to the fallest extent of the line. All the samples are retained for 30days from the Date of releases as the content of the line. All the samples are retained for 30days from the Date of releases as the fallest extent of the line. All the samples are retained for 30days from the Context shall be done within 15days from the Date of Test Report released assumed. After the time period stated before, no complaints will be accepted. The entire Time schedule mentioned in Test Report is in 24 years format. Atheretical date of VA (Not Apparechie): BDL (Below Detection Limit); LDL (Lower Description Limit).



### ENVIRONMENTAL LARO

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARINHANDI GST NO.- 20AAECE9713D124



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

Emall: info@elespi.co.in , eies.ranchi@amail.com

TEST REPORT

Test Report No.	; ELES/RNC/2024/0241	Report Release Date	: 15.01.2024	
Work Order No.	: 13612310218	Work Order Date	±21.04.2023	
ULR No.	: TC883924000000224F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4901 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	Pakhar Bauxite Mine : 22.12.2023 to 23.12.2023 : 30.12.2023
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%) 48	4	Weather Condition	: Clear

Discipline : Chemics	al	Group: A	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/m <sup>3</sup>	IS 5182 (Part- 24): 2019	33	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.7	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)		
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)		
Carbon Monoxide (CO)	mg/m <sup>3</sup>	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/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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Authorised Signatory

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Page i of I

Page 1 of 1

ELES PV. Ltd Taching and Conditions, only or Company tester head in the approved dame. The results shown in the Text Report reflects the first shown in the Laboratory on the time of involvement only in the time of involvement of the report o winner approval of the Laboratory. The Report in full or in part stell not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any anualitorized alteration & distribution of the content or appearance of the Test Report is unlawful and offenders may be prosecuted to the fullest extent of the law. All the samples are retained for 30days from the Date. of release/issue of the Test Report. The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be come within 15tays from the Date of Test Report reseased taxed. After the time period ainted before, no complaints will be accepted. The entire Time acheaule mentioned in Test Report is in 24bours format. Abbreviation used, N/A (Not Applicable), BBI, (Below Detection Limit), LDL (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TURUDANA HATIA, RANCHI-634003 (JHARKHAND) OST NG:-ZOAACCE97130124

### ENGINEERING SERVICES PUT, LPD.

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/2024/0241	Report Release Date	: 15.01.2024	
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/4901     Near Utkarmit Rajkiya Prathmik     Vidyalaya Bunglapan Village     Pakhar Bauxite Mine
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 22.12.2023 to 23.12.2023 : 30.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Milles Dinins	- Operational		The last to the la
Period of Analysis	= 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	MATION				
J:	Average Temperature (°C)	: 19	2	Barometric Pressure (mmH	(g) : 734	
3	Relative Humidity (%)	:48	4	Weather Condition	; Clear	

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (CsHs)*	μg/m <sup>1</sup>	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\*\*\*\*

Authorised Signatory

Dr. Deependra Kurriar Strije. Ph. D Environmental Engg. £LSS Pvt. Ltd. Technical Mans.

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FLOT NO-30, MANSARDVAR ENCLAVE, TLIPUDANA HATIA, RANCHI-834003 (JHARKHAND) 657 NO:- 204 A ECE 9713 D 124

Email: info@elesal.co in , eles ranchi@gmail.com Phone no.: DES1-2290103



Website: www.elespi.co.in

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0242	Report Release Date	: 15.01.2024
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
ULR No.	TC883924000000225F		

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2023/AA/4902 Near Utkarmit Rajkiya Prathmik
Address	: Lohardaga, Jharkhand-835302	Sampling Date	Vidyalaya Dumrapart Village Pakhar Bauxite Mine : 22.12.2023 to 23.12.2023
		Sample Received Date Type of Sample	: 30.12.2023 : Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 -ELES Pvt. Ltd.
Period of Analysis	: 30.12.2023 to 13,01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 48	4	Weather Condition	1 Clear

ı	Group: A	Group: Atmospheric Pollution				
Unit	Test Protocol	Result	Regulatory Limit			
μg/m³	IS 5182 (Part-23): 2006; RA2022	58	100 (24hrs)			
μg/m³	IS 5182 (Part- 24): 2019	26	60 (24hrs)			
μg/m³	IS 5182 (Part-2): 2001; RA2022	7.4	80 (24hrs)			
μg/m³	IS 5182 (Part-6): 2006; RA2022	19.1	80 (24hrs)			
μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)			
μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)			
mg/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)			
jug/m <sup>3</sup>	IS 5182 (Part-22): 2004; RA2019	<0.002	1 (24hrs)			
ng/m³	(S 5182 (Part-26):2020	<6.0	20 (Annual)			
ng/m <sup>1</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)			
	Unit  µg/m³  µg/m³  µg/m³  µg/m³  µg/m³  µg/m³  ng/m³	Unit Test Protocol  μg/m³ IS 5182 (Part-23): 2006; RA2022  μg/m³ IS 5182 (Part-24): 2019  μg/m³ IS 5182 (Part-2): 2001; RA2022  μg/m³ IS 5182 (Part-6): 2006; RA2022  μg/m³ IS 5182 (Part-9): 1974; RA2019  μg/m³ IS 5182 (Part-25): 2018  mg/m³ IS 5182 (Part-10): 1999; RA2019  μg/m³ IS 5182 (Part-22): 2004; RA2019  μg/m³ IS 5182 (Part-22): 2004; RA2019  ng/m³ IS 5182 (Part-26):2020	Unit         Test Protocol         Result           μg/m³         IS 5182 (Part-23): 2006; RA2022         58           μg/m³         IS 5182 (Part-24): 2019         26           μg/m³         IS 5182 (Part-2): 2001; RA2022         7.4           μg/m³         IS 5182 (Part-6): 2006; RA2022         19.1           μg/m³         IS 5182 (Part-9): 1974; RA2019         <20.0			

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

Reviewed by

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Page 1 of 1

Page 1 of 1

ELES PVI. Ltd. Technical Management of the Company letter head to pre-approve format. The results shown in the Test Report reflects the first posture of the control of the control of the results allows in the Test Report reflects the findings done by the Laboratory at the time of involvement only and within the limits of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without prior written approval of the Lamastery. The Report in fall or in part shall not be published, advertise, used for any legal actions unless prior pennission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any unauthorized attention & falsification of the content or appearance of the Test Report is unlawful and offenders may be prosecuted to the fullest extent of the law. All the samples are retained for 30days from the Date of release issue of the Test Report. The samples from Regulatory hodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15days from the Date of Test Report released/issued. After the time period stated before, no complaints will be accepted. The critics Selectable mentioned in Tea Report is in 24hours formal. Abbreviation used: N/A (Not Applicable); SDL (Bellow Detection Limit). LDL (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAVE, TUFUDANA HATUL, RANCHI-834003 (JHARKHAND) GST NO-- 21/44ECE97150124 WOINEERING SERVICES PUT, LTD.

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

#### TEST REPORT

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Test Report No.	: ELES/RNC/2024/0242	Report Release Date	: 15.01.2024	
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/4902 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Address Mines Status	: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 22.12.2023 to 23.12.2023 : 30.12.2023 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 30.12.2023 to 13.01.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFO	MATION			
1	Average Temperature (°C)	:19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 48	4	Weather Condition	: Clear

Discipline: Chem	ical	Group :	Atmospheric	oheric Pollution	
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m <sup>3</sup>	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. Deepend, a Kumar Simila Ph. D.Environmental Engo.

ELES Pvt Ltd. Technical Mane-

Page 1 of 1

The Document classed in Text Report, as issued by the Laboratory under General Terms and Comfitions, only on Company letter bend in pre-deproved format. The results shown in the Text Report reflect or relates only to the job/analysis come by the Laboratory only. The information stated on the Text Report reflects the findings done by the Laboratory in the time of involvement only and within the limits of effect's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information which is previded by the client. The Report contour be reproduced except in full and any part of the toport is not taken out of context, without prior written approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal sections prior permission has been secured from the Management of the Laboratory. Attention is drawn to the limitation of liability, compensation and jurisdiction issues. Any analytic and interaction & facilitation of the text Report is unlawful and offenders may be prosecuted to the follows extent of the law. All the samples are instanced for 30days from the Date of refease/fastion of the Text Report. The samples from Regulatory bodies are to be retained as specifien. Any type of Observations or Complaints regarding the Reports shall be done within 15days from the Date of Text Report. The entire Time schedule mentioned in Text Report in Date of Text Report and Albertation and NA (Not Applicable). BDL (Below Detection Limit), LDL (Lower Detection Limit).

# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT.LTD.

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

Pakhar (15.58) Bauxite Mine-Environmental Monitoring Report

January 2024



## CONTENT

Mine	rals & Minerals : Pakhar (15.58)	Environmental Monitoring Report	January 2024
		Pakhar (15.58)	
	AMBIENT AIR QUALITY- CORI	E ZONE	
1	Near Mine Office		
2	Near Weigh Bridge		
3	Near Mine Quarry No-M1		
4	Near Mine Quarry No-M4		
	AMBIENT AIR QUALITY- BUFF	ER ZONE	
1	Near Bunglapart Village		
2	Yatri Shed (Near K-10)		
3	Near Utkarmit Rajkiya Prathmik Vid	yalaya Bunglapart Village	
4	Near Utkarmit Rajkiya Prathmik Vid		
	Surface Water		
	Soil		





PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:-20AAEEE9713D124

### ENGINEERING SERVICES PVF. LTD.

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

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



TC-8839

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0547	Report Release Date	: 06.02.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883924000000518F		

CUSTOMER DETA	ULS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0486 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 24.01.2024 to 25.01.2024 : 27.01.2024
		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 27.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	±738
3	Relative Humidity (%)	146	4	Weather Condition	; Clear
5	Longitude	. 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

Discipline : Chemica	d	Group: A	tmospheric	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/m³	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	10.6	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	15 5182 (Part-6); 2006; RA2022	27.8	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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/m	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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Page 1 of 1

Authorised Signatory Dr. Deapendra Kumar Sir

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GST NO:- 20A4ECE9713D1Z4

### 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/2024/0547	Report Release Date	: 06.02.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	± 31.03.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0486 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 24,01,2024 to 25,01,2024 : 27,01,2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 27.01.2024 to 05.02.2024	Sample Condition	; Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear
5	Longitude	; 84°36'36.29"E	6	Latitude	: 23°32'24.04"N

Discipline : Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )**	μg/m <sup>†</sup>	IS 5182 (Part-11): 2006; RA2022	<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 Sinita Ph. D Environmental Engg. ELES PVL Ltg. Technical Mane

Page 1 of 1

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0548	Report Release Date	: 06.02.2024
Work Order No.	: M&M/23-24/01	Work Order Date	; 31.03.2023
ULR No.	: TC883924000000519F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0487 : Near Weigh Bridge Pakhar (15,58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 24.01.2024 to 25.01.2024 : 27.01.2024
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 27.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	:18	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	; 46.	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline : Chemica	d .	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	77	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	43	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	12.8	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	29.4	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.026	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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Authorised Signatory Deependra Kumar Sining

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

#### GINEERING SERVICES PVT. LTD.

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

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

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0548	Report Release Date	: 06.02.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DET.	AILS.	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0487 : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 24.01.2024 to 25.01.2024 : 27.01.2024	
		Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	= 27.01,2024 to 05.02.2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	€18	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	‡46	4	Weather Condition	: Clear
5	Longitude	. 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>b</sub> H <sub>b</sub> )*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<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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Authorised Signatory Dr. Beegenars Komar Sinna Ph & Environmental Enga.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 LIHARKHANDI GST NO:-26AAECE9713D124

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TC-8839

#### TEST REPORT

Test Report No.	; ELES/RNC/2024/0549	Report Release Date	r 06.02,2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03,2023	
ULR No.	; TC883924000000520F			

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	ELES/RNC/2024/AA/0488     Near Mine Quarry No- M1     Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 24.01.2024 to 25.01.2024 : 27.01.2024 : Ambient Air	
Mines Status	: Operational	Type of Sample Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 27.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	; 46	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	; 23°32'9.19"N

Discipline : Chemica	d	Group: Atmospheric 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/m³	IS 5182 (Part- 24): 2019	40	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	13.1	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>1</sub> )	µg/m³	IS 5182 (Part-6): 2006; RA2022	27.4	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.013	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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Authorised Signatory Dr. Daependra Kumar SI

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 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/2024/0549	Report Release Date	: 06.02.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	=ELES/RNC/2024/AA/0488
		Location	: Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 24.01.2024 to 25.01.2024
		Sample Received Date	: 27.01.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 27.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 46	4	Weather Condition	! Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

Discipline : Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<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 Kurnar Sinna Ph. D Environmental Engg. ELES Pvt. Ltd. Technical Mane

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

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



TC-8839

#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0550	Report Release Date	: 06.02.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
ULR No.	: TC883924000000521F		

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	Minerals & Minerals Limited	Sample Ref. No. Location	ELES/RNC/2024/AA/0489 Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 24.01,2024 to 25,01,2024 : 27.01,2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	Operational	Sampling Done By	: ELES Pvr. Ltd.	
Period of Analysis	: 27.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 46	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N

Discipline : Chemica	d.	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	68	100 (24hrs)		
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	39	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	10.8	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part-6): 2006; RA2022	28.1	80 (24hrs)		
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)		
Ammonia (NH <sub>3</sub> )	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	0.016	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. Deependas Kumar Sinu

Page 1 of 1

Ph. D Environmental Engg.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124 ENGINEERING SERVICES PVT. LTD.

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0550	Report Release Date	: 06.02.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0489 : Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine	
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 24.01.2024 to 25.01.2024 : 27.01.2024	
200	NA CONTRACTOR	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	: 27.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved	

M	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	: 18	2	Barometric Pressure (mmHg)	: 738
3	Relative Hamidity (%)	: 46	4	Weather Condition	: Clear
5	Longitude	: 84°36'8.99"E	6.	Latitude	: 23°32'13.12"N

Discipline: Chemical		Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<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 PVI. Ltd. Technical Manager

Page 1 of 1

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

### CHARLES OF SERVICES PUT LIE.

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0559	Report Release Date	: 06.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 2L04.2023	
TILR No.	· TC883924000000530F			

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0602 : Near Bunglapart Village Pakhar Bauxite Mine
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 26.01.2024 to 27.01.2024 : 31.01.2024 : Ambient Air
Mines Status	- Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	= 31:01.2024 to 06.02,2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFOI	RMATION			
1	Average Temperature (°C)	:19	2	Barometric Pressure (mmHg)	= 7.34
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline: Chemis	cal	Group: 2	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	• µg/m²	IS 5182 (Part-23): 2006; RA2022	60	100 (24hrs)
Particulate Matter (PM2.5)	μg/m <sup>±</sup>	1S 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	9,3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	21.4	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m²	IS 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m³	1S 5182 (Part- 25): 2018	<10,0	400 (24hrs)
Carbon Monoxide (CO)	ring/m³	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	µg/m²	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m1	IS 5182 (Part-26);2020	<6.0	20 (Annual)
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	96 (Annual)

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

Reviewed by

Dr. Daebendia Komar Sinus
Ph. D Environmental Engg.

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Page 1 of I

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) GUNO.- 20AAECESTI3D134

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0559	Report Release Date	: 06.02.2024	
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/2024/AA/0602 : Near Bunglapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 26.01.2024 to 27.01.2024 : 31.01.2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 31.01,2024 to 06.02,2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature ("C)	; 19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Betzene (C <sub>5</sub> H <sub>6</sub> )*	µg/m³	IS 5182 (Part-11): 2006; RA2022	<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
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Ph. D Environmental English
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Page Lof I

The Document stated in Test Report, is asset by the Laboratory under General Terms and Conditions, only on Correstry letter head in pre-approved formal. The results shown in the Test Report refer or related only to the jobbinaryses dotte by the Laboratory only. The information stated on the Test Report reflects the findings done by the Laboratory of the time of involvement only and writer the limits of elemt's instructions. The Laboratory is responsible for all the information or data provided on the suport, except the information which is provided by the client. The Report cannot be repediated except in full and any pair of the report is only there are not taken out of context, without prior writing approval of the Laboratory. The Report in full or as part shall not be published, advertise, used for any legal actions orders point permission has been recurred from the Management of the Laboratory. Attention is drawn to the limitation of liability, compressions and jurisdiction toxes. Any annotherized alternation & finisfication of the following of the Test Report is critisoful and orferders may be presented to the follows extent of the law. All the samples are retained for 300 yrs from the Date of relating annother facilities used to the follow the law type of Conceptaints regarding the Reports shall be drawn without fidings. Earn the Date of Test Report retrased used with the time period stand before, no complicities will be accepted. The union Time achieves managed in Test Report is a 14 beautiful and or Test Report in a 14 beautiful and or Test Report in the Date of Test Report retrased as a specified. BDL (Relew Detection Limit), LDL (Lower Detection Limit).



PLOT NO-30, MANSAROVAR ENCLAYE, TUPUDANA HATIA, RANCHI-134003 (JNAHKHAND) G5T NO:- 20AAECE9723D124

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0560	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	TC883924000000531F		

CUSTOMER DET.	CUSTOMER DETAILS		
Customer Name	: Hindulco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0603 : Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	:Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 26.01.2024 to 27.01.2024 : 31.01.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 31.01.2024 to 06.02.2024	Sample Condition	; Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	(19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	:45	4	Weather Condition	: Clear

Discipline: Chemica	af .	Group :	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit			
Particulate Matter (PM10)	µg/m³	15 5182 (Part-23): 2006; RA2022	67	100 (24hrs)			
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	36	60 (24hrs)			
Sulphur Di-Oxide (SO <sub>1</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	8.2	80 (24hrs)			
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part-6): 2006; RA2022	25.5	80 (Z4hrs)			
Ozone (O <sub>3</sub> )	µg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (Shrs)			
Ammonia (NH4)	ug/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24ltrs)			
Carbon Monoxide (CO)	mg/m²	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)			
Lead (Pb)	μg/m²	IS 5)82 (Part-22): 2004; RA2019	<0.002	1 (24tics)			
Nickel (Ni)	ng/m	IS 5182 (Part-26):2020	<6.0	20 (Annual)			
Arsenic (As)	ng/m	ELES/AIR/SOP/01	<2.0	06 (Amount)			

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

Reviewed by

Dr. Deeperley Signeyers in to

Ph. D.Environmental.Engg.

Page I of I

The Discourses smed as Total Report, or how of the Laboratory under General Terms and Conditions, only on Company letter need in pre-approved forms. The results these in the Fest Report refer or relates only to the job analysis done by the Laboratory only. The information stated on the Test Report reflects the findings done by the Enboratory at the true of involvement only and wiften the lumits of client a instruction. The Laboratory is responsible for all the information or data provided on the report, except the information which is provided by the client. The Report cannot be reproduced except in full and any part of the report is not taken out of context, without poor written appeared of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Extracatory. Attention is drawn in the limitation of liability, compensation and jurisdiction issues. Any unauthorized attention & falsification of the content in appearance of the Test Report. The samples from sure to processed to the following extent of the law. All the samples are remined to 20days from the Date of release/source of the Test Report. The samples from Regulatory budies are to be refinised as specified. Any type of Observations or Complaints regarding the Reports shall be done within 15days from the Date of Test Report reimmed/assured. After the time period stated before, to complaints will be soccreted. The uniting Time schedule mentioned to Test Report on 25 locars format. Absorbation ment N/A (No. Applicable), ECU (Below Detection Limit). LDL (Leaver Describe Limit).



CIN: U74999IH2018P7C01212

### ENVIRONMENTAL LABORATORIES

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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0560	Report Release Date	: 06.02.2024	
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/2024/AA/0603 : Yatri Shed (Near K-10) Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 26.01,2024 to 27.01 2024 : 31.01,2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	; 31.01.2024 to 06.02.2024	Sample Condition	Sealed & Preserved	

MI	TEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	:45	4	Weather Condition	Clear

Discipline: Chem	ical	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>n</sub> H <sub>n</sub> )*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<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 Reporteens

Authorised Signatory Dr. Deacyns a Kurrar Sinyy

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Page 1 of 1

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-E34003 (JHARKHAND) GST NO: 20AAECE9713D174

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0561	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023
ULR No.	: TC883924000000532F		

CUSTOMER DETA	AILS	SAMPLE DETAILS	
Gustomer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0604 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxtte Mine
Address	: Lohardaga. Jhurkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	25.01.2024 to 27.01.2024 : 31.01.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	; ELES Pvt. Ltd.
Period of Analysis	: 31.01.2024 to 06.02.2024	Sample Condition	; Sealed & Preserved

MI	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%) 345	4	Weather Condition	: Clear

Discipline: Chemie	al.	Group: Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23); 2006; RA2022	59	100 (24hrs)		
Particulate Master (PM2.3)	µg/m <sup>J</sup>	IS 5182 (Part- 24): 2019	35	60 (24hrs)		
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m <sup>-1</sup>	1S 5182 (Part-2): 2001; RA2022	7.8	80 (24hrs)		
Nitrogen Di-Oxide (NO <sub>1</sub> )	$\mu g/m^3$	IS 5182 (Part-6): 2006; RA2022	22.2	80 (24ins)		
Ozone (O <sub>1</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (Shrs)		
Ammonia (NH <sub>3</sub> )	TrB/ut <sub>3</sub>	1S 5182 (Part- 25): 2018	<10.0	#00 (24hrs)		
Carbon Monoxide (CO)	mg/m¹	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)		
Lead (Ph)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.011	1 (24hrs)		
Nickel (Ni)	ng/m²	IS 5182 (Part-26):2020	< 6.0	20 (Annual)		
Arsenic (As)	Sing/m*	ELES/AIR/SOP/01	<2.0	06 (Annual)		

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

Reviewed by

Dr. Deependra Kamar Sina

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

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### TEST REPORT

Test Report No.	: ELES/RNC/2024/0561	Report Release Date	: 06.02.2024	
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/2024/AA/0604 : Near Utkannit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Address	; Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 26,01,2024 to 27,01,2024 : 31,01,2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	Operational	Sampling Done By	ELES Pvt. Ltd.
Period of Analysis	: 31.01.2024 to 06.02.2024	Sample Condition	: Sealed & Preserved

MI	TEOROLOGICAL INFORM	AATION			
1	Average Temperature (°C)	=19	ā.	Barometric Pressure (mmHg)	:734
3.	Relative Humidity (%)	; 45		Weather Condition	: Clear

Discipline: Chem	ical	Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Benzene (C <sub>6</sub> H <sub>6</sub> )*	ng/m²	IS 5(82 (Part-11): 2006; RA2022	<1.0	05(Atotual)		
Benzo-(a)-Pyrene®	ng/m³	18 5182 (Part-12): 2004; RA2019	<0.5	01(Annual)		

Rentarks; (")-Parameters are outsurrood to other Lab.



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

Authorised Signatory

Dr. Deependra Kumur Sin.ca Pn D Environmental Engg

ELES Pvt. Ltd. Technical Manar-

Page I of I

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

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TEST REPORT

Test Report No.	: ELES/RNC/2024/0562	Report Release Date	: 06.02.2024
Work Order No.	: 13612310218	Work Order Date	; 21.04.2023
LLR No.	; TC883924000000533F		

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindalco Industries Limited	Sample Ref. No.	ELES/RNC/2024/AA/0605	
		Location	: Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	26.01.2024 to 27.01.2024 : 31.01.2024 : Ambient Air : ELES/DOC/SMPL/02	
Mines Status	: Operational	Sampling Done By	: ELES Pvl. Ltd.	
Period of Analysis	: 31.01.2024 to 06.02.2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) : 19	2	Barometric Pressure (mmHg)	=734
3	Relative Humidity (%) :45	4	Weather Condition	; Clear

Discipline: Chemics	d	Group !	Atmospheric	Pollution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)
Particulate Matter (PM2.5)	μg/m <sup>3</sup>	IS 5182 (Part- 24); 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	7,8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part-6): 2006; RA2022	21.5	80 (24hrs)
Ozone (O <sub>2</sub> )	Hg/m²	IS 5182 (Part-9): 1974; RA2019	<20.0	(00 (8hrs)
Ammonis (NH <sub>3</sub> )	μg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	jug/m²	IS 5182 (Part-22): 2004; RA2019	< 0.002	1 (24hrs)
Nickel (Ni)	ng/m1	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m²	ELES/AIR/SOP/01	<2.0	06 (Annual)

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

Reviewed by

Dr. Deependia Komar

Page 1 of 1

Page 1 of 1

The Decurrent stands of the Person of could by the Laboratory under General Torms and Conditions, only on Company letter beed in pre-approved format. The results above in the Teo Report Selection of the laboratory and the Teo Report Selection of the laboratory and the time of the results and within the limits of clear's instructions. The Laboratory is responsible for all the information or due provided on the report, asked to which is provided by the clearly instructions. The Laboratory is full and any part of the report is not taken out of concess, without prior appropriate the information of the report is not taken out of concess, without prior appropriate the full prior a writen approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions unless prior permission has been secured from the Management of the Leberatory. Attention is drawn to the fundation of hability, compensation and jurisdiction issues. Any unsufficient alteracion & fabrillation of the convent or appearance of the Test Report is indicated and offenders may be prosecuted to the following rate of the law. All the samples are retained for 30days from the Date of solessonsine of the Text Report. The samples from Residency buddes are to be retained as specified. Any type of Other various or Complaints regarding the Reports shell his open within 15thm from the Date of Tex Report relinised/instent. After the rises period stated before, no complaints will be accepted. The entire Time state-has prenticted in Test Report in an 34 bears formin. Althorystein mart. N/A (Not Applicable), HOL (Delow Describe, Limit), LDL (Linwer Detection Limit)



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 2014ECE97130124

### ENGINEERING SERVICES PVT. LTD.

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/2024/0562	Report Release Date	106.02.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DETA	AILS	SAMPLE DETAILS		
Customer Name	: Hinduleo Industries Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/0605 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine	
Address Mines Status	: Lobardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 26.01,2024 to 27,01.2024 : 31.01,2024 : Ambient Air : BLES/DOC/SMPL/02 : ELES Pvt. Ltd.	
Period of Analysis	: 31.01.2024 to 06.02.2024	Sample Condition	: Sealed & Preserved	

M	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 19	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 45	4	Weather Condition	: Clear

Discipline: Chem	ical	Group:	Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	µg/m³	1S 5182 (Part-11): 2006; RA2022	<1.0	05(Annsal)	
Benzo-(a)-Pyrene+	ng/m³	1S 5182 (Part-12): 2004; RA2019	<0.5	QI(Annual)	

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

Reviewed by

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

Authorised Signatory
Dr. Deepandra Kumdi Cirriii
Ph. D Environmental Engg
ELES Pyl. Ltd. Technical Merv

Page 1 of 1

The Decument stated in Test Report in assued by the Laboratory under German Terms and Conditions, only on Company letter head in presupproved forms. The results shown in the Test Report refer or relates only to the jubianships down by the Laboratory andy. The information stated on the Test Report reflects the findings done by the Laboratory at the time of involvement only and webin the limits of clean?'s involvement. The Laboratory is respectively of the report is not taken on of contest, without prior united approval of the Laboratory. The Report in fail or in part shall not be published, advertise, used for any legal actions unless action permission has been secured from the Management of the Laboratory. Attemport is the failing to the failing, compensation and jurisdiction issues. Any summittee of the Report is unlawful and offenders may be prosecuted in the fallest extent of the law. All the samples are related for 30 days from the Date thoughts are related for 15 the Test Report. The samples from Regulatory before one to the related as specified. Any type of Observations or Complicator against an incomplication of the samples from Regulatory before act to tune period stated before, no compliants will be accepted. The samples from Regulatory before all the time period stated before, no compliants will be accepted. The sample Time schedule wentposed in Test Report is in Tillianto format. Afterwance used. N/A (Nitt Applicable), BDJ. (Below Detection Limit). LCIL (Lower Detection Limit)



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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0592	Report Release Date	: 06.02.2024
Work Order No.	: M&M/23-24/01	Work Order Date	7 31.03.2023
ULR No.	: TC883924000000563F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/SW/0627 : 25.01,2024 : 31.01,2024	
Address : Lohardaga, Jharkhand-835302		Type of Sample Source of Sample	: Surface Water : Near Mine Quarry No-M1 Pakhar (15.58 ha) Bauxite Mine	
Plant Status	: Operational	Sampling Procedure Sampling Done By	ELES/DOC/SMPL/01 ELES Pvt. Ltd.	
Period of Analysis	: 31.01.2024 to 05.02.2024	Sample Condition	: Sealed & Preserved	

Discipline : Chemical		Group	Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water
pH (at 24.5%C)		IS 3025 (Part 11): 2022	6.75	6.5-8.5
Temperature	°C	IS 3025 (Part 9):1984; RA2017	24.6	~
Chemical Oxygen Demand (COD)		IS 3025 (Part-58) :2006; RA2017	4.0	*
Biochemical Oxygen Demand (BOD) (@ 20°C for 5 days)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 5210B	1.4	3,0
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	92.8	1500
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17):2022	8.8	141
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	BDL (DL: 0.1)	1.0
Calcium (as Ca)	mg/L	IS 3025 (Part-40) !1991, RA2019	3,1	-
Discipline : Cher	nical	Group :	Residues in W	later
Aluminium (Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03
Iron (as Fe)	mg/L	APHA23 <sup>rd</sup> Ed 2017; 3111B	0.095	50

Remarks: I. pH tione at Lab

Limit).

Reviewed by

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

Authorised Signatory Dr. Deependra Kumar Sini

Page 1 of I

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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0607	Report Release Date	: 06.02,2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31,03,2023
ULR No.	: TC883924000000578F		

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date	: ELES/RNC/2024/SL/0642 : 25.01.2024 : 31.01.2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Location of Sample	: Soil : Near Mine Quarry No-M1 Pakhar Bauxite Mine (15.58 ha	
Plant Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/05 : ELES Pvt. Ltd.	
Period of Analysis	: 31.01.2024 to 05.02.2024	Sample Condition	: Sealed	

Discipline : Chemical		Group: Pollution & Environment		
Parameter	Unit	Test Protocol	Result	
pH (1:2) at 24.6 °C	1 - 1	IS 2720 (Part 26):1987; RA2021	4.13	
Conductivity (1:2) at 24.6 °C	μS/cm	IS 14767: 2000; RA2021	243	
Total Organic Carbon (TOC)	%	Soil Testing in India: 2011 (Walkley & Black Method)	0,22	
Available Phosphorus (as P) (1:10)	kg/ha	Soil Testing in India; 2011	4.8	
Potassium (as K)	mg/kg	IS 9497:1980; RA 2020	2300	
Available Nitrogen	%	Soil Testing in India: 2011	8.68	
Chloride (1:2)	%	ELES/SOIL/SOP/01	0.13	
Lead (as Pb)	mg/kg	US EPA 3050 A&B : 1996	BDL (DL: 0.1)	
Cadmium (as Cd)	mg/kg	US EPA 3050 A&B: 1996	BDL (DL: 0.1)	
Mercury (as Hg)	mg/kg	US EPA 7473 : 2007	BDL (DL: 0.01)	
Magnesium (as Mg)	mg/kg	Soil Testing in India: 2011	280	

Remarks: 1. pH done at Lab.

William C

Reviewed by

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

Authorised Signatory Dr. Doenendia r

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

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#### TEST REPORT

Test Report No.	: ELES/RNC/2024/0607	Report Release Date	: 06.02.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/SL/0642	
		Sampling Date	: 25.01.2024	
	land and a second	Sample Received Date	: 31.01.2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample	s Soil	
	2.10.3080 (28.00.00)	Location of Sample	: Near Mine Quarry No-M1	
			Pakhar Bauxite Mine (15.58 ha)	
		Sampling Procedure	: ELES/DOC/SMPL/05	
Plant Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.	
Period of Analysis	±31.01.2024 to 05.02.2024	Sample Condition	: Sealed	

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

Reviewed by

SHE

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

Dr. Deependra Kurnar Sin Ph. D Environmental Engo LLES Pvt. Ltd. Technical Man

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

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

Pakhar (15.58) Bauxite Mine-Environmental Monitoring Report

February 2024



### CONTENT

	Minerals & Minerals : Pakhar (15.58) Environmental Monitoring Report February 202
	Pakhar (15.58)
	AMBIENT AIR QUALITY- CORE ZONE
1	Near Mine Office
2	Near Weigh Bridge
3	Near Mine Quarry No-M1
4	Near Mine Quarry No-M4
	AMBIENT AIR QUALITY- BUFFER ZONE
1	Near Bunglapart Village
2	Yatri Shed (Near K-10)
3	Near UtkarmitRajkiyaPrathmikVidyalayaBunglapart Village
4	Near UtkarmitRajkiyaPrathmikVidyalayaDumrapart Village
	Drinking Water
	Ambient Noise
	Workzone Noise





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

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

#### TEST REPORT

Test Report No.	: ELES/RAN/2024/1300	Report Release Date	: 11.03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1343 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 22.02.2024 to 23.02.2024 : 26.02.2024
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 26.02.2024 to 05.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Lid. : Sealed & Preserved

MI	ETEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	†22	2	Barometric Pressure (mmHg)	c 738
3	Relative Humidity (%)	: 47	- 4	Weather Condition	Clear
5	Longitude	: 84°36'36,29"E	6	Latitude	: 23°32'24.04"N

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	66	100 (24hrs)
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	9.2	80 (24hrs)
Nîtrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6); 2006; RA2022	25.1	80 (24hrs)
Ozone (O <sub>1</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m <sup>1</sup>	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	1S 5182 (Part-22): 2004; RA2019	0.008	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)

Reviewed by

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

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1

Ph. D Environmental Engo.

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

#### TEST REPORT

Test Report No.	; ELES/RAN/2024/1300	Report Release Date	: 11.03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	; 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1343 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine	
Address	1 Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 22.02.2024 to 23.02.2024 : 26.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	; 26.02.2024 to 05.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 22	1 2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear
5	Longitude	: 84°36'36.29"E	6	Latitude.	: 23°32'24.04"N

Discipl	ine : Chemical	Group : Atmosp	heric Pollutio	on
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> ) <sup>6</sup>	μg/m³	IS 5182 (Part-11); 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>3</sup>	JS 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 Pvt. Ltd. Technical Manager

Page 1 of 1

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Mines Status

Period of Analysis

. Operational

Reviewed by

: 26.02.2024 to 05.03.2024

### ENVIRONMENTAL LABORATORIES &

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

### ENGINEERING SERVICES PVT. LTD.

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: ELES/DOC/SMPL/02

: Sealed & Preserved

ELES Pvt. Ltd.

#### TEST REPORT

Test Report No.	: ELES/RAN/2024/1301	Report Release Date	: 11,03.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1344 : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 22.02.2024 to 23.02.2024 : 26.02.2024 : Ambient Air

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	- 738	
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear	
5	Longitude	= 84°36'34.50"E	6	Latitude	23°32'26.21"N	

Sampling Procedure

Sampling Done By

Sample Condition

Discipline	: Chemical	Group : Atmosp	beric Pollutio	on
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	82	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	13.3	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	28.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m³	1S 5182 (Part-9); 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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 (8brs)
Lead (Pb)	μg/m <sup>3</sup>	IS 5182 (Part-22); 2004; RA2019	0.032	I (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. Desperior Swamer Sinha

Page 1 of 1 ELES Pvt. Ltd. Technical Manage

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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/RAN/2024/1301	Report Release Date	: 11.03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03,2023	

CUSTOMER DET	AILS	SAMPLE DETAILS	V - 7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1344 : Near Weigh Bridge Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 22.02.2024 to 23.02.2024 : 26.02.2024
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02
Period of Analysis	: 26.02.2024 to 05.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	÷47	4	Weather Condition	: Clear
5	Longitude	: 84°36'34.50"E	6	Latitude	: 23°32'26.21"N

Discipl	ine : Chemical	Group : Atmosp	heric Pollutio	on
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )*	µg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m³	IS 5182 (Part-12): 2004; RA2019	<0.5	Ol(Annual)

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



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

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

Page 1 of 1

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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/RAN/2024/1302	Report Release Date	: 11.03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1345 : Near Mine Quarry No- M1 Pakhar (15,58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	= 22,02,2024 to 23,02,2024 = 26,02,2024	
Mines Status	Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 26.02.2024 to 05.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 47	4	Weather Condition	: Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m³	IS 5182 (Part-23): 2006; RA2022	62	(00 (24hrs)	
Particulate Matter (PM2.5)	μg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	31	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	8.8	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m³	IS 5182 (Part-6): 2006; RA2022	22.6	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NH <sub>3</sub> )	μg/m <sup>‡</sup>	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	0.011	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)	
The state of the s	-				

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Reviewed by

Authorised Signatory

Dr. Deependra Kumar Sinha

Page 1 of 1 Ph. D Environmental Engg.

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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@amail.com Phone no.: 0651-2290103

Website : www.elespl.co.in

#### TEST REPORT

Test Report No.	: ELES/RAN/2024/1302	Report Release Date	: 11.03.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1345 : Near Mine Quarry No- M1 Pakhar (15,58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 22.02.2024 to 23.02.2024 : 26.02.2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 26.02,2024 to 05.03,2024	Sampling Done By Sample Condition	: ELES Pyt. Ltd. : Sealed & Preserved	

MI	TEOROLOGICAL INFOR	RMATION			
1	Average Temperature (°C)	22	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 47	4	Weather Condition	; Clear
5	Longitude	: 84°36'6.67"E	6	Latitude	: 23°32'9.19"N

Discipli	ine : Chemical	Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<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



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

Dr. Deependra Kulmar 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:- 20AAECE971301Z4

### ENGINEERING SERVICES PVT. LTD.

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

TEST REPORT

Test Report No.	: ELES/RAN/2024/1303	Report Release Date	: 11.03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1346 : Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 22.02.2024 to 23.02.2024 : 26.02.2024	
Mines Status	: Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02	
Period of Analysis	: 26.02.2024 to 05.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	738
3	Relative Humidity (%)	: 47	4	Weather Condition	2 Clear
5	Longitude	: 84°36'8.99"E	6	Latitude	:: 23°32'13.12"N

Discipline	: Chemical	Group : Atmosp	heric Pollutio	on
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	15 5182 (Part-23): 2006; RA2022	70	100 (24hrs)
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	12.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	25.6	80 (24hrs)
Ozone (O3)	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>†</sup>	1S 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	μg/m²	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	15 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m!	ELES/AIR/SOP/01	<2.0	06 (Annual)

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

Authorised Signatory Dr. Deependra Kumar Sinha

FIL D Environmental Engg

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

#### TEST REPORT

Test Report No.	: ELES/RAN/2024/1303	Report Release Date	: 11.03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1346 : Near Mine Quarry No-M4 Pakhar (15,58 ha) Bauxite Mine	
Address	Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 22.02.2024 to 23.02.2024 : 26.02.2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 26.02.2024 to 05.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

METEOROLOGICAL INFORMATION						
1	Average Temperature (°C)	+22	2	Barometric Pressure (mmHg)	738	
3	Relative Humidity (%)	:47	4	Weather Condition	: Clear	
5	Longitude	: 84°36'8.99"E	6	Latitude	: 23°32'13.12"N	

Discipline : Chemical		Group : Atmospheric Pollution				
Parameter	Unit	Test Protocol	Result	Regulatory Limit		
Bertzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m <sup>1</sup>	IS 5182 (Part-11): 2006; RA2022	<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.

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

Dr. Deependra Komar Sinha
Ph D Environmental Engg.
CS Pvt. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPLIDANA HATIA, RANCHI-834003 (IHARKHAND) GST NG:- 20446CE97130124 ENGINEERING SERVICES PVT. LIO.

Emall: Infa@elespl.co.in , eles.ranchi@pmail.com Phone no.: 0651-2290103 Website: www.elespl.co.in

#### TEST REPORT

Test Report No.	; ELES/RAN/2024/1294	Report Release Date	: 11.03.2024	
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/RAN/2024/AA/1334 : Near Bunglapari Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 20.02.2024 to 21.02.2024 : 26.02.2024 : Ambient Air : ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pyt. Ltd.
Period of Analysis	= 26.02.2024 to 05.03.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	:48	4	Weather Condition	: Clear

Discipline	: Chemical	Group: Atmosp	heric Pollutio	on
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m <sup>†</sup>	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 <sub>2</sub> )	µg/m³	IS 5182 (Part-2); 2001; RA2022	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>1</sup>	(S 5182 (Part-6): 2006; RA2022	19.4	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS-5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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	18 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/m <sup>1</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)

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

Page 1 of 1

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Dr. Deependra Kumar Sinha

Ph. D Environmantal Engg.

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-854003 (IMARKHAND) GST NO:- 20AAECE97130124 ENGINEERING SERVICES PUT. LTD.

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

#### TEST REPORT

Test Report No.	: ELES/RAN/2024/1294	Report Release Date	: 11.03.2024	
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS		
Customer Name	: Hindaloo Industries Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1334 : Near Bunglapart Village Pakhar Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 20.02.2024 to 21.02.2024 : 26.02.2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure Sampling Done By	; ELES/DOC/SMPL/02 ; ELES Pvt, Ltd.	
Period of Analysis	: 26.02.2024 to 05.03.2024	Sample Condition	: Sealed & Preserved	

MI	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 22	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	:48	4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Benzene (C <sub>6</sub> H <sub>6</sub> )*	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)	
Benzo-(a)-Pyrene®	ng/m³	15 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 I of I

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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/RAN/2024/1292	Report Release Date	: 11.03.2024	
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/RAN/2024/AA/1335 Yatri Shed (Near K-10)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	Pakhar Bauxite Mine : 20.02.2024 to 21.02.2024 : 26.02.2024 : Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
Period of Analysis	: 26.02.2024 to 05.03,2024	Sample Condition	: Sealed & Preserved

M	ETEOROLOGICAL INFORM	ATION				
	Average Temperature (°C)	22	2	Barometric Pressure (mmH	g) : 734	
3	Relative Humidity (%)	48		Weather Condition	: Clear	

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m³	IS 5182 (Part-23): 2006; RA2022	71	100 (24hrs)
Particulate Matter (PM2,5)	μg/m³	IS 5182 (Part- 24); 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	15 5182 (Part-2): 2001; RA2022	9.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	23,8	80 (24hrs)
Ozone (O <sub>n</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	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)	hā/m,	IS 5182 (Part-22): 2004; RA2019	0.012	1 (24hrs)
Nickel (Ni)	ng/m <sup>1</sup>	JS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/ATR/SOP/01	<2.0	06 (Annual)

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

Reviewed by

Authorised Signatory Dr. Deependra Kumar Sinha

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

#### TEST REPORT

Test Report No.	: ELES/RAN/2024/1292	Report Release Date	: 11.03,2024
Work Order No.	: 13612310218	Work Order Date	: 21.04.2023

CUSTOMER DET.	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Hindales Industries Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1335 : Yatri Shed (Near K-10) Pakhar Bauxite Mine		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 20.02.2024 to 21.02.2024 : 26.02.2024 : Ambient Air		
Mines Status	: Operational	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES Pvt. Ltd.		
Period of Analysis	: 26,02,2024 to 05,03,2024	Sample Condition	: Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 22	2.	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 48	.4	Weather Condition	: Clear

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>s</sub> H <sub>b</sub> )*	μg/m³	1S 5182 (Part-11); 2006; RA2022	<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 Engo. ELES Pvt. Ltd. Technical Managor

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

### TEST REPORT

Test Report No.	: ELES/RAN/2024/1293	Report Release Date	; 11.03.2024
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/RAN/2024/AA/1336 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 20,02.2024 to 21.02.2024
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 26.02.2024 to 05.03.2024	Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION

1 Average Temperature (°C) : 22	2 Barometric Pressure (mmHg) : 734	
3 Relative Humidity (%) : 48	4 Weather Condition : Clear	

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m <sup>7</sup>	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>1</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m <sup>1</sup>	IS 5182 (Part-6): 2006; RA2022	20.5	80 (24hrs)
Ozone (O <sub>3</sub> )	mg/by	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (Shrs)
Ammonia (NH <sub>1</sub> )	μg/m <sup>†</sup>	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>1</sup>	IS 5182 (Part-10): 1999; RA2019	<1,0	2 (8hrs)
Lead (Pb)	μg/m³	IS 5182 (Part-22): 2004; RA2019	<0.082	1 (24hrs)
Nickel (Ni)	ng/m <sup>‡</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m1	ELES/AIR/SOP/01	<2.0	06 (Annual)

Reviewed by

\*\*\*\*Ead of Report\*\*\*

Dr. Deependra Kumar Sinha

Page 1 of 1

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

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

#### TEST REPORT

: ELES/RAN/2024/1293	Report Release Date	: 11.03,2024
: 13612310218	Work Order Date	: 21.04.2023
LS	SAMPLE DETAILS	
: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1336 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine
: Lohardaga, Jharkhand-835302 : Operational	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 20.02.2024 to 21.02.2024 : 26.02.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd.
: 26.02.2024 to 05.03.2024	Sample Condition	: Seafed & Preserved
	: 13612310218 LS : Hindalco Industries Limited : Lohardaga, Trarkhand-835302	LS SAMPLE DETAILS : Hindako Industries Limited Sample Ref. No. Location  : Lohardaga, Jharkhand-835302 Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By

3 Relative Humidity (%)	Relative Humidity (%) :48		ion	Clear
Discipli	ne : Chemical	Group : At	mospheric Polluti	оп
Parameter	Unit	Test Protocol	Result	Regulatory Limit

 Parameter
 Unit
 Test Protocol
 Result
 Regulatory Limit

 Benzene (C<sub>a</sub>H<sub>a</sub>)\*
 μg/m³
 IS 5182 (Part-11): 2006; RA2022
 <1.0</td>
 05(Annual)

 Benzo-(a)-Pyrene\*
 ng/m³
 IS 5182 (Part-12): 2004; RA2019
 <0.5</td>
 01(Annual)

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

Reviewed hy

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

Authorised Signatory

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

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Mines Status

Period of Analysis

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 2044ECF9713D124 INDINEERING SENVICES FOR ESD.

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

: ELES Pvt. Ltd.

: Scaled & Preserved

### TEST REPORT

Test Report No.	: ELES/RAN/2024/1295	Report Release Date	: 11.03.2624
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/RAN/2024/AA/1337 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 20.02.2024 to 21.02,2024 : 26.02.2024 : Ambient Air : ELES/DOC/SMPL/02

M	ETEOROLOGICAL INFORMATION	
1	Average Temperature (°C) : 22	2 Barometric Pressure (mmHg) : 734
3	Relative Humidity (%) : 48	4 Weather Condition / Clear

Sampling Done By

Sample Condition

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	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 <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	19,3	80 (24hrs)
Ozone (O <sub>5</sub> )	μg/m³	15.5182 (Part-9): 1974; RA2019	<20.0	100 (8lus)
Ammonia (NH <sub>3</sub> )	ug/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	JS 5182 (Part-10): 1999; RA2019	<1.0	2 (8hrs)
Lead (Pb)	ha/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)

Reviewed by

: Operational

: 26.02.2024 to 05.03.2024

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PVF. LID.

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### TEST REPORT

	120	RELORI			
Test Report No.	: ELES/RAN/2024/1295	Report Release Date	: 11.03,2024		
Work Order No.	: 13612310218	Work Order Date			
CUSTOMER DET.	AILS	SAMPLE DETAILS			
Customer Name	: Hindalco Industries Limited	Sample Ref. No. Location	: ELES/RAN/2024/AA/1337 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine		
Address Mines Status	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By	: 20.02.2024 to 21.02.2024 : 26.02.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd. : Sealed & Preserved		
Period of Analysis	: 26.02.2024 to 05.03.2024	Sample Condition			
METEOROLOGIC	AL INFORMATION				
Average Temperature (°C) = 22		2 Barometric Pressur	2 Barometric Pressure (mmHg) : 734		
3 Relative Humidity (%) : 48		4 Weather Condition			

Discipline: Chemical		Group ; Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>5</sub> H <sub>5</sub> ) <sup>6</sup>	μg/m³	IS 5182 (Part-11): 2006; RA2022	<1.0	05(Annual)
Benzo-(a)-Pyrene*	ng/m <sup>1</sup>	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 Pvr. Ltd. Technical Manager

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834903 (JHARKHAND) GST NO:- 204AECE9713D1Z4

### ENGINEERING SERVICES PVT. LTD.

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

#### TEST REPORT

Test Report No.	: ELES/RAN/2024/1323	Report Release Date	: 11,03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	; 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RAN/2024/DW/1360	
	-	Sampling Date	: 22.02.2024	
	A complete and a comp	Sample Received Date	: 26,02,2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample	: Drinking Water	
		Source/Location of Sample	: Near Mine Office Pakhar (15.58 ha) Bauxite Mine	
		Sampling Procedure	: ELES/DOC/SMPL/01	
Mines Status	: Operational	Sample Collected By	ELES Pvt. Ltd.	
Period of Analysis	: 26.02.2024 to 07.03,2024	Sample Condition	Sealed & Preserved	

Discipline : Chemical		Group ; Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.4 °C)	(4)	APHA 23 <sup>rd</sup> Ed,2017, 4500-H	6,68	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 23rd Ed.2017, 2130 B	0.80	0.1	5.0
Taste	4	APHA 23 <sup>rd</sup> Ed.2017, 2160 C	Agreeable	Agreeable	Agreeable
Odour	(-)	IS 3025 (Part-5) ;2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 23rd Ed.2017, 2120B&D	1.0	5	15
Total Dissolved Solids (TDS)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2540B,C&D	218	500	2000
Chloride (as Cl)	mg/L	APHA 23rd Ed.2017, 4500 CLB	28.4	250	1000
Fluoride (as F)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 2320 B	72.8	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 23rd Ed,2017, 2340 C	86.8	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 SO <sub>4</sub> -2-E	18.6	200	400
Nitrate (as NO <sub>8</sub> )	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 4500 NO <sub>5</sub> -B	1.45	45	No Relaxation
Phenolic Compound (as C <sub>s</sub> H <sub>e</sub> OH)	mg/L	IS 3025 (Part-43):1992;RA2019	BDL (DL: 0.001)	0.001	0.002

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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/RAN/2024/1323
 Report Release Date
 : 11.03.2024

 Work Order No.
 : M&M/23-24/01
 Work Order Date
 : 31.03.2023

Discipl	ine: Che	mical Group: V	Vater	the second second second	tory Limit 10500:2012		
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit		
Cyanide (as CN)	mg/L	APHA 23 <sup>rd</sup> 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 <sup>rd</sup> Ed.2017, 3500 Ca B	23.3	75	200		
Discipline : Chemical		mical Group	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 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0.003)	0.003	No Relaxation		
Total Chromium (as Cr)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3 111B	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	0.224	1,0	1.0		
Lead (as Pb)	mg/L	APHA 23rd Ed.2017, 3111B	BDL (DL: 0.01)	0,01	No Relaxation		
Manganese (as Mn)	mg/L	APHA 23 <sup>rd</sup> 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 <sup>rd</sup> Ed.2017, 3111B	BDL (DL: 0,1)	3	15		

Page 2 of 4

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97190124

## ENGINEERING SERVICES PVT. LTD.

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

### TEST REPORT

 Test Report No.
 : ELES/RAN/2024/1323
 Report Release Date
 : 11.03.2024

 Work Order No.
 : M&M/23-24/01
 Work Order Date
 : 31.03.2023

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

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

## 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/2024/1323 Report Release Date : 11.03.2024

Work Order No. : M&M/23-24/01 Work Order Date : 31.03.2023

Discipline : B	iological	Group: V	Votos	Regulat	ory Limit
Discipline . Di	ionigical.	Group: V	vater	as per 15	10500:2012
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Total Coliform	Per 100 mL	IS 15185:2016; RA 2021	Not Detected	61	i marky
Escherichia Cali (E. Cali)	Per 100 ml.	IS 15185:2016; RA 2021	Not Detected	Shall not	be detected
Discipline :	Chamical	Group: \	Valor	Regulati	ory Limit
Discipline,	Chemical	Group:	as per IS	er IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Anionic Surfactants (as MBAS)*	mg/L	1S 3025 (Part- 68) : 2019 (RA2023)	BDL (DL: 0.1)	0.2	1.0
Polynuclear Aromatic Hydrocarbons (PAH)*	mg/L	APHA 23 <sup>rd</sup> Edition: 6440 B	BDL (DL: 0.0001)	0.0001	No Relaxation
Polychlorinated Biphenyls (PCB)*	mg/L	APHA 23 <sup>rd</sup> Edition: 6431B	BDL (DL: 0.0005)	0.0005	No Relaxation

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

ies & En

Reviewed

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

Dr. Deependra Kurtiar Storia Ph. D Environmental Engg. ELES Pvt. Ltd. Technical Manager

Page 4 of 4

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

# 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/RAN/2024/1342	Report Release Date	: 11.03.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

CUSTOMER DET	TAILS	SAMPLE DETAILS		
Customer Name Address	: Minerals & Minerals Limited : Lohardaga, Jharkhand-835302	Sampling Date Sampling Received Date Type of Sample Sampling procedure Sampling Done By	: 22.02.2024 to 23.02,2024 : 26.02.2024 : Ambient Noise : ELES/DOC/SMPL/03 : ELES Pvt, Ltd.	
Mines Status	: Operational	Period of Analysis	: 26.02.2024 to 02.03.2024	

M	ETEOROLOGICAL INFO	RMATION			
1	Average Temperature (°C)	: 23	2	Barometric Pressure (mmHg)	= 734
3	Relative Humidity (%)	: 48	4	Weather Condition	Clear

Location	Unit	Test Protocol	Resi	ilt	Regulatory Limit (Industrial Zone)
013-226			Time	Leq	
Near Mine Office Pakhar Bauxite Mine (15.58 ha)	dB(A)	IS 9989:1981, RA 2020	Day Time	62	75 dB(A) Day Time &
Sample ID: ELES/RAN/2024/AN/1352		STATE AND THE	Night Time	49	70 dB(A) Night Time



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

Authorised Signatory

Dr. Deependra Kurnar 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:- 20AAECE9713D124

## ENGINEERING SERVICES PVT. LTD.

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

### TEST REPORT

Test Report No.	: ELES/RAN/2024/1356	Report Release Date	: 11.03.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DE	TAILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sampling Date Sampling Received Date	: 23.02.2024 : 26.02.2024	
Address	: Lohardaga, Jharkhand-835302	Type of Sample Sampling procedure Sampling Done By	: Workzone Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd.	
Mines Status	: Operational	Period of Analysis	: 26.02.2024 to 02.03.2024	

M	ETEOROLOGICAL INFORMATION			
1	Average Temperature (°C) ; 23	2	Barometric Pressure (mml-	(g) : 734
3	Relative Humidity (%) 48	4	Weather Condition	: Clear

Location	Unit	Test Protocol	Res	alt	Regulatory Limit (Industrial Zone)
Near Weigh Bridge -			Time	Leq	
Pakhar Bauxite Mine (15.58 ha)	dB(A)	IS 4758:1968; RA 2017			90 dB (A)
Sample ID: ELES/RAN/2024/WN/1356		2017	Day Time	74	



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

Dr. Deependra Kumar Sima Ph. Denvironmental Engg ELES Pvt. Ltd. Technical Manager

Page 1 of 1

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# **ENVIROCHECK**

Lab: MIG, R-3 Housing Colony, Dhanbad, Pin-826001, State- Jharkhand.

Pakhar (15.58) Bauxite Mine-Environmental Monitoring Report

March 2024

# CONTENT

(manual)	Minerals & Minerals : Pakhar (15.58) Environmental Monitoring Report March 20
	Pakhar (15.58)
	AMBIENT AIR QUALITY- CORE ZONE
1	Near Mine Office
2	Near Weigh Bridge
3	Near Mine Quarry No-M1
4	Near Mine Quarry No-M4
	AMBIENT AIR QUALITY- BUFFER ZONE
1	Near Bunglapart Village
2	Yatri Shed (Near K-10)
3	Near UtkarmitRajkiyaPrathmikVidyalayaBunglapart Village
4	Near UtkarmitRajkiyaPrathmikVidyalayaDumrapart Village
	Stack
	Spring Water
1	Chapa Kona



Late: MIG.R-3 Housing Colony, Chanbail. Phys 826001, State: Hartenand C9830067044 / C9800513737

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1509	Report Release Date	: 10.04.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1590 : Near Mine Office Pakhar (15.58 ha) Bauxite Mine		
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.03.2024 to 20.03.2024 : 22.03.2024		
Mines Status	5 Operational	Type of Sample Sampling Procedure	: Ambient Air : ELES/DOC/SMPL/02		
Period of Analysis	: 22.03.2024 to 28.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved		

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C')	: 25	2	Barometric Pressure (minHg)	: 738
3	Relative Humidity (%)	:47	4	Weather Condition	: Clear

Discipline:	Chemical	Group; Atn	ospheric Poll	ution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m³	1S 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	1S 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	11.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m³	IS 5182 (Part-6): 2006; RA2022	22.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m <sup>1</sup>	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m <sup>3</sup>	IS 5182 (Part-22); 2004; RA2019	0.011	) (24brs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6,0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (CAHA)	µg/m³	ELES/GC/SOP/06	<1.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>2</sup>	ELES/GC/SOP/05	<0.5	0)(Annual)

Reviewed by :

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

**Ubarkhand** 

Monsing Ca

(Saswata Burman Roy, Dy. Quality Manager)/

Authorised Signatory:

(Bapan Das, Dy Technical Manager)

Page 1 of 1





Tab. MIG. R. J. Housing Colory: Disabled, Phys 826001, State - Harkmand J. 9830067044 / \$ 9304513737

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1510	Report Release Date	: 10.04.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	ELES/RNC/2024/AA/1591 : Near Weigh Bridge Pakhar (15,58 ha) Bauxite Mine	
Address	+ Lobardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample	: 19.03,2024 to 20.03,2024 : 22,03,2024 : Ambient Air	
Mines Status	: Operational	Sampling Procedure	: ELES/DOC/SMPL/02	
Period of Analysis	: 22.03,2024 to 28.03,2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C) : 3	25	2	Barometric Pressure (mm)	Hg) = 738
3	Relative Humidity (%)	17	4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atn	ospheric Poll	ution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	73	100 (24hrs)
Particulate Matter (PM2.5)	μg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	39	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	10.6	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6): 2006; RA2022	23.2	80 (24hrs)
Ozone (O <sub>1</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m <sup>3</sup>	1S 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m²	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/m <sup>5</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m²	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	<0.5	01(Annual)

Reviewed by:

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

VIROC

Jharkhand 826001

Vite Colum

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

(Bapan Das, Dy. Technical Manager)

Page | of l



(1) (2011) 24 [ 7.4 (14) 4 (2011) 2017) 3 (2014) 3 (2014) 3 (2014) 3 (2014) 4 (2014)



TEST REPORT

Test Report No.	: ELES/RNC/2024/1511	Report Release Date	; 10.04.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1592 : Near Mine Quarry No- M1 Pakhar (15.58 ha) Bauxite Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	: 19.03.2024 to 20.03.2024 : 22.03.2024 : Ambient Aic : ELES/DOC/SMPL/02
Mines Status Period of Analysis	: Operational : 22.03.2024 to 28.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Scaled & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (*C)	: 25	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	147	4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atn	iospheric Poll	ution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	ug/m³	IS 5182 (Part-23): 2006; RA2022	65	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part-24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2): 2001; RA2022	10.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	μg/m <sup>3</sup>	IS 5182 (Part-6); 2006; RA2022	18.4	80 (24hrs)
Ozone (O <sub>5</sub> )	µg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NII))	µg/m³	IS 5182 (Part- 25): 2018	<10,0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Ph)	µg/m³	IS 5182 (Part-22): 2004; RA2019	800.0	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (CoHo)	μg/m <sup>3</sup>	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	< 0.5	01(Annual)

Reviewed by :

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

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(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory :

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(Bapan Das, Dy. Technical Manager)

Page Lof I



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### TEST REPORT

Test Report No.	: ELES/RNC/2024/1512	Report Release Date	: 10.04.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DET	AILS	SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/AA/1593 : Near Mine Quarry No-M4 Pakhar (15.58 ha) Bauxite Mine	
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19.03.2024 to 20.03.2024 : 22.03.2024	
Mines Status	Operational	Type of Sample Sampling Procedure	- Ambient Air - ELES/DOC/SMPL/02	
Period of Analysis	: 22.03.2024 to 28.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Sealed & Preserved	

MI	ETEOROLOGICAL INFORM	ATION			
1	Average Temperature (°C)	25	2	Barometric Pressure (mmHg)	738
3	Relative Humidity (%)	47	-4	Weather Condition	: Clear

Discipline:	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	μg/m <sup>3</sup>	IS 5182 (Part-23): 2006; RA2022	63	100 (24hrs)	
Particulate Matter (PM2.5)	µg/m³	1S 5182 (Part-24): 2019	30	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-2): 2001; RA2022	9.1	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	23.6	80 (24hrs)	
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)	
Ammonia (NHs)	µg/m³	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs).	
Carbon Monoxide (CO)	mg/m²	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	μg/m <sup>1</sup>	IS 5182 (Part-22); 2004; RA2019	0.008	1 (24hrs)	
Nickel (Ni)	ng/m <sup>1</sup>	IS 5182 (Part-26):2020	<6.0	20 (Annual)	
Arsenie (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)	
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	< 0.5	01(Annual)	

Reviewed by:

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

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Jharkhand 826001

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(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

(Bapan Das, Dy. Technical Manager)

Page L of I





TEST REPORT

Test Report No.	: ELES/RNC/2024/1517	Report Release Date	: 10,04,2024	
Work Order No.	113612310218	Work Order Date	; 21.04.2023	

CUSTOMER DETA	ALLS	SAMPLE DETAILS	
Customer Name	: Hindstop Industries Limited	Sample Ref No. Location	BLES/RNC/2024/AA/1598 New Bunglapert Village Pakhar Bauxite Mina
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	18.03.2024 to 19.03.2024 -22.05.2024 Amblent Air ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	: ELES Pvt. Ltd.
Period of Analysis	: 22,03,2024 to 28.03,2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
T	Average Temperature (°C)	126	2	Bayometric Pressure (mmHg)	734
3	Relative Humidity (%)	: 45	4	Weather Condition	Clear

Discipliner	Chemical	Group: Atmospheric Pollution			
Parameter	Unit	Test Protocol	Result	Regulatory Limit	
Particulate Matter (PM10)	µg/m²	1S 5182 (Part-23); 2006; RA2022	52	100 (24hrs)	
Particulate Matter (PM2.5)	μg/ns³	1S 5182 (Part- 24): 2019	33	60 (24hrs)	
Sulphur Di-Oxide (SO <sub>2</sub> )	μg/m³	IS 5182 (Part-2); 2001; RA2022	7.4	80 (24hrs)	
Nitrogen Di-Oxide (NO <sub>1</sub> )	μg/m³	IS 5182 (Part-6); 2006; RA2022	17.9	80 (24hrs)	
Ozone (O <sub>3</sub> )	µg/m³	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (Shrs)	
Ammonia (NH <sub>1</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10,0	400 (24hrs)	
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)	
Lead (Pb)	µg/m³	IS 5182 (Part-22): 2004; RA2019	0.005	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)	
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>T</sup>	ELES/GC/SOP/06	<2.5	05(Annual)	
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SQP/05	< 0.5	01(Annual)	

Reviewed by :

FORE

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

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

Spring

(Bapan Das, Dy. Technical Manager)

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Jharkhand 826001





### TEST REPORT

Test Repurt No.	: ELES/RNC/2024/1518	Report Release Date	= 10.04,2024	
Work Order No.	: 13612310218	Work Order Date	: 21,04,2023	

CUSTOMER DET.	AILS	SAMPLE DETAILS	
Customer Namo	: Hindalco Industries Limited	Sample Ref. No. Location	= ELES/RNC/2024/AA/1599 = Yatri Shed (Near K-10) Pakhar Bauxite Mine
Address	: Lohardaga, Jharkhond-835302	Sampling Date Sample Received Date Type of Sample	: 18.03 2024 to 19.03.2024 ; 22.03.2024 : Ambient Air
Mines Status	: Operations)	Sampling Procedure Sampling Done By	: ELES/DOC/SMPL/02 : ELES PVL Ltd.
Period of Analysis	22.03.2024 to 28.03.2024	Sample Condition	: Sealed & Preserved

MI	ETEOROLOGICAL INFO	RMATION			
.1	Average Temperature (°C)	: 26	1-2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 45	4	Weather Condition	Clour

Discipline:	Chemical	Group: At	mospheric Pol	lution
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	цg/m³	4S 5182 (Part-23): 2006; RA2022	64	100 (24hrs)
Particulate Matter (PM2.5)	μg/m³	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	Ma/m2	(S 5182 (Part-2): 2001; RA2022	8.4	80 (24hrs)
Nitrogen Di-Oxide (NO2)	µg/m <sup>3</sup>	IS 5182 (Part-6): 2006; RA2022	21.5	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m/	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m²	IS 5182 (Part- 25); 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	TS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μμ/m³	IS 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m <sup>9</sup>	1S 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>1</sup>	ELES/AIR/SOP/01	<2.0	96 (Amual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	pg/m³	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	< 0.5	01(Annual)

Reviewed by :

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

Authorised Signatory:

(Saswata Burman Roy, Dy. Quality Manager) /

Jharkhand 826001

(Bapen Das, Dy, Technical (Manager)

Page 1 of 1





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## TEST REPORT

Test Report No.	: ELES/RNC/2024/1519	Report Release Date	- 10.04.2024
Work Order No.	: 13612310218	Work Order Date	: 21.04,2023
CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name Address	: Hindalco Industries Limited  : Loherdage, Jharkhand-835302	Sample Ref. No. Location Sampling Bate Sample Received Date Type of Sample	ELES/RNC/2024/AA/1600  : Near Unisern it Rejkiya Prathmik Vidyalaya Buoglapart Village Pakhar Bauxite Mine  : 18.03.2024 to 19.03.2024  : 22.03.2024  : Ambient Air
Mines Status	: Operational	Sampling Procedure Sampling Done By	ELES/BOC/SMPL/02 ELES Pvt. Ltd.
Period of Analysis	: 22.03.2024 to 28.03.2024	Sample Condition	Sealed & Preserved

MI	ETEOROLOGICAL INFOR	EMATION			
1	Average Temperature (°C)	: 26	1 2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	745	4	Weather Condition	: Clear

Discipline	: Chemical	Group: A	tmospheric Po	allution
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/m <sup>3</sup>	1S 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SQ <sub>1</sub> )	µg/m³	IS 5182 (Part-2): 2001; RA2022	7.3	80 (24hrs)
Nitrogen Di-Oxide (NO2)	μg/m³	IS 5182 (Part-6); 2006; RA2022	23.1	80 (24hrs)
Ozone (O <sub>7</sub> )	μg/m <sup>3</sup>	1S 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	μg/m³	JS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	μg/m³	1S 5182 (Part-22): 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m <sup>7</sup>	IS 5182 (Part-26):2020	< 6.0	20 (Amual)
Arsenic (As)	ng/m³	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (CaHa)	Itg/m)+	ELES/GC/SOP/06	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	<0.5	Ol(Annual)

Reviewed by :

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(Bapan Das, Dy Technical Manager)

Authorised Signatury :

(Saswata Burman Roy, Dy. Quality Manager)



Page 1 of 1



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TEST REPORT

Test Report No.	ELES/RNC/2024/1520	Report Release Date	± 10.04.2024
Work Order No.	: 13612316218	Work Order Date	£21:04:2023
CUSTOMER DETA	AILS	SAMPLE DETAILS	
Customer Name	- Hindalco Industries Limited	Sample Ref. No.	: SLES/RNC/2024/AA/1601   Near Ulkermit Rajkiya Prathmik   Vidyalaya Dumrapari Village   Pakhar Bandte Mine
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date Type of Sample Sampling Procedure	18.03,2024 to 19.03.2024 122.03.2024 1 Ambient Aur 1 ELES/DOC/SMPL/02
Mines Status	: Operational	Sampling Done By	ELES Pvc Lad
Period of Analysis	7. 22.03.2024 to 28.03.2024	Sample Condition	Sealed & Preserved

MI	ETEOROLOGICAL INFOR	MATION			
1	Average Temperature (°C)	: 26	2	Barometric Pressure (mmHg)	: 734
3	Relative Humidity (%)	: 45	-4	Weather Condition	: Clear

Discipline	2 Chemical	Group: A	tmospheric Pe	ollation
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	ug/m³	IS 5182 (Part-23): 2006; RA2022	62	100 (24hrs)
Particulate Matter (PM2.5)	µg/m³	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	ug/m³	IS 5182 (Pert-2): 2001; RA2022	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO:)	μg/m³	IS 5182 (Part-6): 2006; RA2022	23.6	80 (24hrs)
Ozone (O <sub>3</sub> )	μg/m³	IS 5182 (Part-9): 1974; RA2019	<20.0	100 (8hrs)
Ammonia (NH <sub>x</sub> )	µg/m³	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m³	IS 5182 (Part-10): 1999; RA2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m³	IS 5182 (Pan-22); 2004; RA2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m³	IS 5182 (Part-26):2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m³	ELES/GC/SOP/06	<2.5	05(Annusl)
Benzo-(a)-Pyrene	ng/m³	ELES/GC/SOP/05	< 0.5	O1(Annual)

Reviewed by :

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

(Bapan Das, Dy. Technical Manager)

Authorised Signatory:

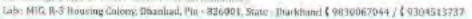
(Saswata Burman Roy, Dy. Quality Manager)



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### TEST REPORT

Test Report No.	: ELES/RNC/2024/1563	Report Release Date	: 10.04.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

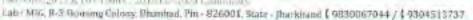
CUSTOMER DET	AILS	SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Location	: ELES/RNC/2024/SM/1609 : Pakhar (15:58) Bauxite Mine DG (45 KVA)
Address	: Lohardaga, Jharkhand-835302	Sampling Date Sample Received Date	: 19,03.2024 : 22.03.2024
Mines Status	Operational	Type of Sample Sampling Procedure	: Flue Gas : ELES/DOC/SMPL/02(A)
Period of Analysis	: 22.03.2024 to 29.03.2024	Sampling Done By Sample Condition	: ELES Pvt. Ltd. : Senled & Preserved

GE	NERAL INFORMATION	
1	Particular of the Plant	: Bauxite Mines
2	Emission Due to	Burning of HSD
3	Stack Connected to	: DG 45 KVA
4	Material of Construction of Stack	: MS
5	Stack Height from Ground Level (m)	: 4.2
6	Height of Sampling Port from Ground Level (m)	:4.2
7	Inner Diameter of Stack at Sampling Point (m)	: 0.102
8	Shape of the Stack	: Circular
9	Working Load of the Stack	: 45 KVA
10.	Pollution Control System	: N/A
11	Ladder & Platform	: Temporary

FL	EL CHARACTERISTICS DETAILS	
1	Type of Fuel Used	: HSD
2	Fuel Consumption	: N/A
3	Calorific Value of Fuel (Kcal/Kg)	; N/A
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### TEST REPORT

Test Report No.	: ELES/RNC/2024/1563	Report Release Date	: 10.04.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31,03,2023	

Discipline : Cl	nemical	Group: Atmospheric	Pollution
Parameter	Unit	Test Protocol	Results
Purticulate Matter (PM)	mg/Nm <sup>3</sup>	IS 11255 (Part-1): 1985; RA2019	34
Sulphur Di-Oxide (SO <sub>2</sub> )	mg/Nm³	USEPA 6C:2017	18
Oxides of Nitrogen (NO <sub>4</sub> )	mg/Nm <sup>1</sup>	USEPA 7E :2020	107
Carbon Monoxide (CO)	mg/Nm <sup>3</sup>	USEPA 10B :2017	28
Carbon Di- Oxide (CO <sub>2</sub> )	1%	IS 13270:1992; RA2019	5.9
Flue Gas Temperature	oC.	IS 11255 (Part-3): 2008; RA2018	159
Barometric Pressure	mmHg	IS 11255 (Part-3): 2008; RA2018	741
Velocity of Flue Gas	m/sec	IS 11255 (Part-3): 2008; RA2018	12.03
Quantity of Gas Flow	Nm³/hr	IS 11255 (Part-3): 2008; RA2018	238

Reviewed by :

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

Authorised Signatory:

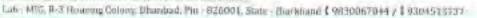
(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



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## TEST REPORT

Test Report No.	: ELES/RNC/2024/1552	Report Release Date	: 10.04.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

CUSTOMER DETAILS		SAMPLE DETAILS		
Customer Name	: Minerals & Minerals Limited	Sample Ref. No. Sampling Date Sample Received Date Type of Sample	: ELES/RNC/2024/SW/1602 : 20.03.2024 : 22.03.2024 : Surface Water	
Address	Lohardaga, Jharkhand-835302	Source of Sample Location of Sample	- Spring Water : Chapa Kona(Bunglapart Village), Pakhar Bauxite Mine (15.58 hu)	
Mines Starus	Operational	Sampling Procedure Sample Collected By	: ELES/DOC/SMPL/01 : ELES Pvt. Ltd.	
Period of Analysis	: 22.03.2024 to 39.03.2024	Sample Condition	: Sealed & Preserved	

Discipline: Chemical			pr Water	Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 25.2 °C)	*	IS 3025 (Part 11): 2022	6.52	6.5-8.5
Colour	Hazen	IS 3025 (Part -4): 2021	3.0	300
Odour	T.	1S 3025 (Part-5): 2018	Unobjectionable	_
Taste	-	APHA 23rd Ed.2017, 2160 C	N/A	-
Turbidity	mg/L	IS 3025 (Part-10):1984;RA2017	0.95	
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part 16):1984; RA2017	96.8	1500
Total Alkalinity (as CaCO <sub>2</sub> )	mg/L	IS 3025 (Part-23):1986; RA2019	14.2	
Total Hardness (as CaCO <sub>1</sub> )	mg/L	IS 3025 (Part-21): 2009; RA2019	25.7	14
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part 24) : 1986; RA2019	10.2	400
Nitrate (as NO:)	mg/l.	APHA 23td Ed.2017, 4500 NOs-B	1.71	50
Chloride (as CI)	mg/L	IS 3025 (Part-32):1988; RA2019	7.7	600
Fluoride (as F)	mg/L	IS 3025 (Part-60):2008; RA2019	0.142	1.5
Cyanide (as CN)	mg/L	APHA 23st Ed.2017, 4500 CN-E	BDL (DL: 0.012)	0:05
Phenols Compounds (as C <sub>r</sub> H <sub>2</sub> OH)	mg/L	(S 3025 (Pan-43): 1992;RA2019	BDL (DL: 0.001)	0,005



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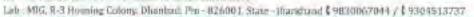
Test Report No. : ELES/RNC/2024/1552 Report Release Date : 10.04.2024

Work Order No. : M&M/23-24/01 Work Order Date : 31.03,2023

Discipline: Chem	ical	Group: Wat	Tolerance Limits	
Parameter	Unit	Test Protocol	Result	as per 15 2296-1992 Class C (Inland Surface Water)
Calcium (as Ca)	mg/L	1S 3025 (Part-40): 1991;RA2019	2.5	+
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) (2021	BDL (DL:: 0.1)	
Anionic Surfactants (as MBAS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Discipline: Chemic	al	Group: Residu	es in Water	
Alominium (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	+1
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 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.003)	10.0
Total Chromium (as Cr)	mg/L	APHA 23 <sup>st</sup> Ed.2017; 3111B	BDL (DL: 0.03)	171
Copper (as Cu)	mg/L	APHA 23 <sup>rd</sup> Ed.2017; 3111B	BDL (DL: 0.03)	1.5
fron (as Fe)	mg/L	APHA 23rd Ed.2017; 3111B	0.109	50
Lead (as Pb)	mg/L	APHA 23 <sup>st</sup> Ed.2017, 3111 B	BDL (DL: 0.01)	0,1
Manganese (as Mn)	mg/L	APHA 23 <sup>st</sup> Ed.2017; 3111 B	BDL (DL: 0.05)	) <del></del>
Mercury (as Hg)	mg/L	1S 3025 (Part-48) :1994; RA2019	BDL (DL: 0.001)	-
Selenium (as Se)	mg/I_	1S 3025 (Part-56) ;2003; RA2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 23 <sup>rd</sup> Ed.2017, 3111 B	BDL (DL: 0.1)	15
Polynuclear Aromatic Hydrocarbons (PAH) Remarks: 1, pH & RFC done at Lab	μg/L	ELES/GC/SOP/04	BDL (DL; 0.05)	



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### TEST REPORT

Test Report No.	: ELES/RNC/2024/1552	Report Release Date	: 10.04.2024
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023

Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Pesticides				
Alachlor	րջ/Ն	ELES/GC/SOP/01	BDL (DL: 0.5)	÷
Atrazine	µg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Butachlor	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Chlorpyriphos	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Ethion	L'ya	ELES/GC/SOP/01	BDL (DL: 0.5)	-
Malathion	µg/L	ELES/GC/SOP/01	BDL (DL: 0,5)	*
Methyl parathion	μg/L	ELES/GC/SOP/01	BDL (DL: 0.1)	7-
Monocrotophos	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	0.50
Phorate	μg/L	ELES/GC/SOP/01	BDL (DL: 0.5)	54
Phorate Sulphone	μg/L	FLES/GC/SOP/01	BDL (DL: 0.5)	-
Dieldrin	µg/L	ELES/GC/SOP/02	BDL (DL: 0.01)	) <del>-</del>
Alpha HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0,006)	-
Beta HCH	µg/L	ELES/GC/SOP/02	BDL (DL: 0.02)	T-
Delta HCH	µg/L	ELES/GC/SOP/02	BDL (DL; 0.02)	
Gamma HCH (Lindane)	րց/ե	ELES/GC/SOP/02	BDL (DL: 0.02)	-
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02	BDL (DL; 0.05)	-
DDT(o.p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02	BDL (DL: 0.05)	-



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Lab. MIG. R-3 Housing Colony, Dhanbad, Pin - 826001, State | Thankband \$ 9830067044 / \$ 9304513737

### TEST REPORT

Test Report No.	: ELES/RNC/2024/1552	Report Release Date	: 10.04.2024	
Work Order No.	: M&M/23-24/01	Work Order Date	: 31.03.2023	

Discipline : Biological		Group: Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per 1S 2296-1992 Class C (Inland Surface Water)
Total Coliform	CFU/100 ml.	IS 15185: 2016, RA2021	2.63×10 <sup>2</sup>	5000
Escherichia Coli	CFU/100 mL	IS 15185: 2016; RA2021	<1.0	NA.

Reviewed by:

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

Authorised Signatory:

The second

(Saswata Burman Roy, Dy. Quality Manager)



(Bapan Das, Dy. Technical Manager)



Annexure 3

Date - 28.10.2023

## Office Order

Environmental Cell has been re-constituted at Pakhar Bauxite Mine (Area 35.12 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

- 1. Mr. Kiran Shankar Singh (Coordinator)
- 2. Mr. Biswajeet Deogharia (Geologist)
- 3. Ms. Abhilasha Singh Environment Engineer
- 4. Mr. Anand Prakash Tiwari Environment Engineer

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

Basudev Gangopadhyay

AVP (Planning, Environment & Compliance)

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

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

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

<sup>\*\*</sup>Part of OB removed cost.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)