

# MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. : M&M/LHD/ENV/MoEF/981

Date- 20.11.2024

To,

The Dy. Director General of Forest (C)

Ministry of Environment, Forests and Climate Changes

2nd Floor, Headquarter-Jharkhand State Housing Board

Harmu Chowk, Ranchi, Jharkhand-834002

**Sub:** Compliance Report of EC conditions for Bimarla (134.526 ha) Bauxite Mining project of M/s Minerals & Minerals Limited located in Gumla, Jharkhand for the period April'24 to September'24.

**Ref:** Environmental Clearance letter no J-11015/87/2009-IA.II (M) dated 24<sup>th</sup> Sep, 2013

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bimarla (134.526 ha)** Bauxite Mining project of **M/s Minerals & Minerals Limited** located in Gumla, Jharkhand for the period April'24 to September'24.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
134.37	300000	18.07.2009 to 17.07.2059

Hope you will find the same in order.

Thanking You

Yours Sincerely

FOR Minerals & Minerals Limited

(Basudev Gangopadhyay)

AVP (Planning, Environment & Compliance)

Enclosure: - As Above

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

**Name of the Project** : **Bimarla Bauxite Mine (134.526 ha)**  
**M/s Minerals & Minerals Ltd**

**Environment Clearance No & date** : **J-11015/87/2009-IA. II (M) dated 24.09.2013.**

**Period of compliance Report** : **From 1<sup>st</sup> April'24 to 30<sup>th</sup> September'24**

**Specific Condition: -**

**Condition i: - The project proponent shall obtain Consent to Establish and Consent to Operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.**

**Reply: -** Consent to Establish (CTE) and Consent to Operate (CTO) have been obtained. The Stipulated conditions of CTE/CTO are being Implemented and complied with. The existing Consent to Operate (CTO) is valid till 30<sup>th</sup> Sept 2026.

**Condition ii: - Implementations of conditions laid down in the letter of the State Department of Forests vide dated 11.05.2012 with regard to permission for transportation of ore through the forest land.**

**Reply: -** The conditions laid down in the said letter are being implemented and complied with.

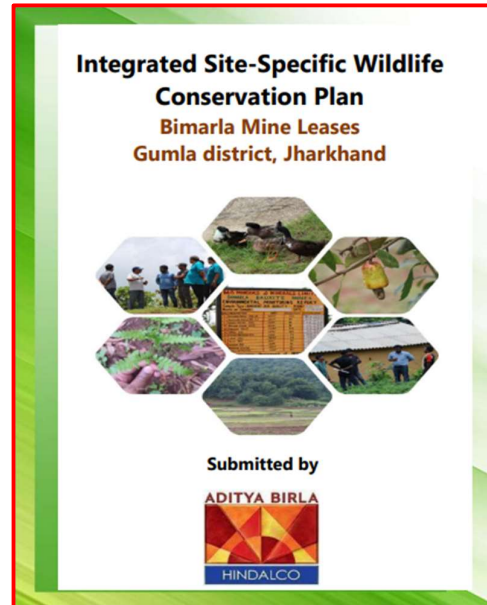
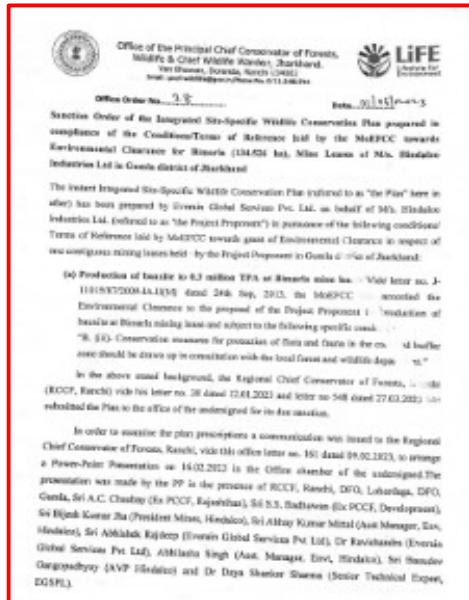
**Condition iii: - Necessary wildlife clearance as may be applicable to this project should be obtained. Measures for conservation of flora and fauna observed in the study area shall be undertaken. The Wildlife Conservation Plan shall be implemented in consultation with the State Forests and Wildlife Department.**

**Reply: -** We understand that Wildlife Clearance is not applicable to this project as the mine is located beyond the eco-sensitive zone.

Safeguard Measures already implemented and being implemented as suggested by forest department are as follows: -

1. Minimum level of Noise during Mining.
2. Permanent pillars are established within in the mine lease area at 7.5m from the forest boundary.
3. Daily water sprinkling on haul road.
4. Transportation is carried out during daytime only.
5. Maintenance of mineral transportation road is being done regularly.
6. Social activities are being undertaken in nearby areas etc.

Also, we have been granted letter of approval for the Integrated Site-specific Wildlife Conservation Plan via Office Order No.28 dated 01.06.2023 by PCCF, Wildlife, Ranchi.



**Condition iv - Adequate measures for control of air pollution in the area shall be taken and it shall be ensured that the pollution levels do not exceed the prescribed limits.**

**Reply:** - Adequate Measures for control of air pollution in the area are being taken. Important measures are as follows.

1. Water sprinkling on haul roads and at places of source of pollution.
2. Control blasting practice.
3. Wet drilling is in practice.

Monitoring report of Ambient Air Quality is attached herewith as **Annexure 2**.


**Condition v - No working shall be undertaken in the forest area for which forestry clearance has not been obtained.**

**Reply:** - Noted. However, there is no forest land within the lease hold area. Therefore, there is no need for forest clearance.

**Condition vi: - Necessary prior clearance, as applicable shall be obtained from CGWA for working below groundwater table.**

**Reply:** - Since shallow depth mining is being carried out, hence there is no intersection with the groundwater table. In the future also, the working zone will be restricted to above the groundwater table. We assure that no mining is/was carried out below the groundwater table, and the same status will be maintained in the future also. Moreover, we are regularly monitoring the groundwater table through the installation of a piezometer. A copy of the water level report is attached herewith as **Annexure-1**.

However, we have already obtained an NOC for the extraction of groundwater from CGWA/CGWB for drinking purposes only. A copy of the same NOC is attached below.



भारत सरकार  
जल संवर्धन विभाग  
औद्योगिक एवं शहरी आपूर्ति  
विभाग  
Government of India  
Ministry of Jal Shakti  
Department of Water Resources,  
River Development & Gangs Rejuvenation  
Central Ground Water Authority

(बिना निकासी हेतु अनमति प्रमाण पत्र)  
**NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION**

Project Name:	Bimarla Bauxite Mining Project (134.37 Ha)		
Project Address:	Bimarla Bauxite Mining Project, VIII -barang, Chagra, Korle And Bimarla, Dist-gumla		
Village:	Bimarla	Block:	Ghaghra
District:	Gumla	State:	Jharkhand
Pin Code:			
Communication Address:	Minerals Minerals Ltd, Court Road, Lohardaga, Lohardaga, Lohardaga, Jharkhand - 835302		
Address of CGWS Regional Office:	Central Ground Water Board Mid Eastern Region, 6th &amp;amp;amp; 7th Floor, Lok Noyak Jai Prakash Bhawan, Frazor Road Dak Bungalow, Patna, Bihar - 800011		

1. NOC No.:	CGWA/NOC/MIN/REN/2/2023/8451	2. Date of Issuance	26/10/2023
3. Application No.:	21-4489/JHMIN/2019	4. Category (GWRE 2022)	Safe
5. Project Status:	Existing Ground Water	6. NOC Type:	Renewal
7. Valid from:	16/01/2024	8. Valid up to:	15/01/2026

Fresh Water		Saline Water		Dewatering		Total	
m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year	m <sup>3</sup> /day	m <sup>3</sup> /year
9.50	3467.50						

10. Details of ground water abstraction / Dewatering structures											
Total Existing No.:1				Total Proposed No.:9							
DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
*Abstraction Structure*											
0	0	1	0	0	0	0	0	0	0	0	0

11. Ground Water Abstraction/Restoration Charges paid (Rs.): 0.00

12. Environment Compensation (if applicable) paid (Rs.): 0.00

(Compliance Conditions given overleaf)

NOC for Groundwater

**Condition vii :-** The Company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter-alia provide for (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders.

**Reply:-** Policies towards Corporate Environment Responsibility is in place. The latest corporate environment policy enumerating corporate responsibilities is attached as **Annexure 6**. Company has implemented a system in line with the above policies which addresses following points. (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company.

**Condition viii :-** The mining operations shall be restricted to above the groundwater table and it should not intersect the groundwater table, In case of working below the groundwater table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be carried out.

**Reply:** - Noted. Since shallow depth mining is being carried out in Bimarla Bauxite Mine. Therefore, Mining operation does not involve intersection of ground water table. However, we are regularly monitoring the ground water table through installation of piezometer.

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

**Condition ix:** - **The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected.**

**Reply:** - No natural watercourse and/or water resource is being and will be obstructed due to any mining operations.

**Condition x:** - **The topsoil, if any shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.**

**Reply:** - Topsoil is being stacked temporarily properly with proper slope as and when required. Concurrent backfilling and reclamation of mined out area are being exercised for which topsoil is being spread on backfilled area for reclamation. No OB dump is present in mines. The mining is being carried out as per the approved mining plan. Monitoring and management of rehabilitated areas is being done through effective supervision.

**Condition xi:** - **Monitoring and management of rehabilitated areas should continue until vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Bhubaneswar on six monthly basis.**

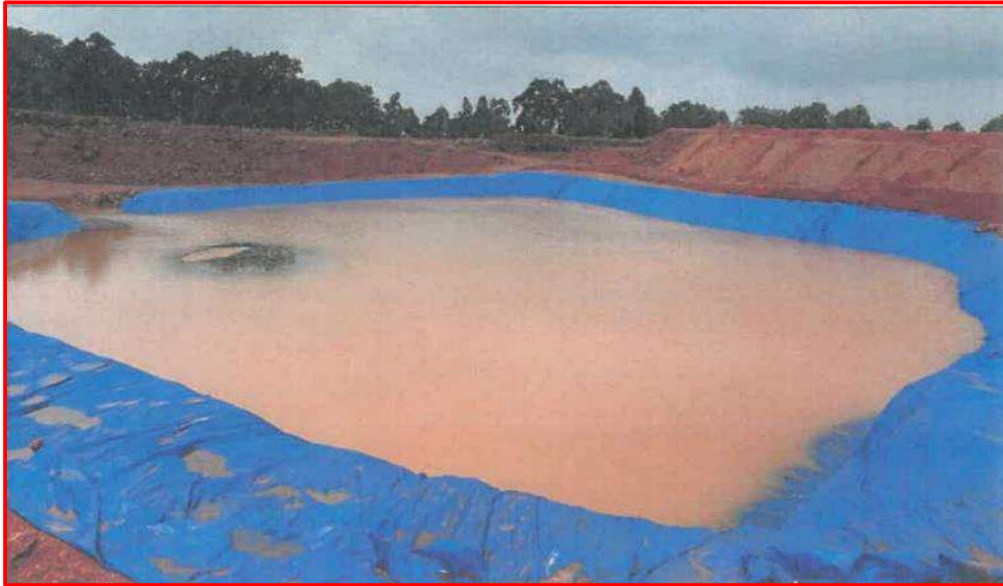
**Reply:** - This Mine started production since 2015-16. Monitoring and management of rehabilitated areas is being done through effective supervision. Concurrent Backfilling has already been started as per approved mining plan in scientific manner. The Data pertaining to status of backfilling is attached as **Annexure-4**. Photographs of Reclaimed area are attached below.



Reclaimed area

**Condition xii: - Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, soil and mineral dumps to arrest flow of silt and sediment directly into the agricultural fields and the water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de silted particularly after monsoon, and maintained properly, Garland drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and flow sediments directly into the agricultural fields and the water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de silted at regular intervals.**

**Reply: -** To collect & manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed and maintained in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required. Photographs of the same is attached below.



Rainwater Harvesting Pond



Catchment Drain



Garland Drain

**Condition xiii: - Dimension of the retaining wall at the toe of sub-grade dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.**

**Reply: -** There is no temporary dumps within the mining lease area. However, dimensions of the retaining wall of temporary OB dumps will be maintained based on average rain fall, if required.

**Condition xiv: - The plantation is proposed over an area of 24 ha with 2500 samplings per ha.**

**Reply: -** Total 6245 saplings have been planted in and around mine area for the period from April'24 to September'24. Total 10.70 ha areas have been planted till date. In

addition to this agricultural activity is going on in reclaimed land as per the consent from landowners.

Green belt development programme is in progress with progress of mining activities



Plantation at mines

**Condition xv: Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.**

**Reply:** - Effective safeguard measures, such as regular water sprinkling is being carried out on haul road and in critical areas prone to air pollution. Regular Ambient Air Quality (AAQ) monitoring is being carried out by NABL accredited Laboratory and all parameters are found within the prescribed limit. Monitoring report of AAQ is attached herewith as **Annexure-2**. Photographs of Water Tanker is attached herewith below.





Sprinkling of water on roads

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

**Reply:** - Effective measures have already been implemented. A detailed rainwater harvesting plan to augment ground water has been prepared and suitable measures like water harvesting pond etc. are created for augmentation of ground water in the area in consultation with Central Ground Water Board. Photograph of Rainwater Harvesting Pond is already attached in **Condition xii**.

**Condition xvii: -Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.**

**Reply:** - We are not using ground water for any mining purpose. Since, Shallow depth mining is being carried out, hence there is no intersection of ground water table during the mining operation at present and in future also. A Piezometer has been installed for monitoring of ground water level. Water level and water quality reports are being sent regular to regional office of Ministry, CGWA/CGWB and JSPCB. The same is attached herewith as **Annexure 1 & 2**. Now, Regional office of MoEF&CC is in Ranchi.



Piezometer

**Condition xviii: -Monitoring of the springs shall be carried out for the quality and quantity of water regularly so as to ensure that there is no adverse impact- on the same due to the project. Records in this regard shall be maintained.**

**Reply: -** Spring water is being monitored regularly and Analysis report is attached as **Annexure 2.**

**Condition xix: -It shall be ensured that there is no change in the hydrology of the area due to the project.**

**Reply: -**Noted. We regularly monitor the ground water level and no adverse changes is observed.

**Condition xx: -Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.**

**Reply: -** Suitable rainwater harvesting measures like harvesting pond have been constructed on long term basis for augmentation of ground water in the area, in consultation with Central Ground Water Board. Photograph of Rainwater Harvesting Pond is already attached in reply to above condition xvi.

**Condition xxi: - Appropriate mitigative measures shall be taken to prevent pollution of the all the water bodies, in consultation with the State Pollution Control Board.**

**Reply: -**We are not discharging any water outside mine lease area. Appropriate mitigative measures have been taken to prevent pollution of nearby water bodies. The drainage system in the mining lease area is designed to collect all rainwater within the lease into the pit/ rainwater harvesting pond only and ensuring that water does not flow outside the boundaries of the mine lease under any circumstances.

**Condition xxii: - Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.**

**Reply: - Regular maintenance of vehicles is being undertaken to minimize vehicular emission. Measures are being taken to control emission. The vehicles are being covered with tarpaulin while transportation of mineral. Photograph of Tarpaulin Covered Vehicle and PUC Certificate are attached below.**



Tarpaulin Covered Vehicle

Form 59  
(New sub. 115 of)

Pollution Under Control Certificate

Authorized By: Government of West Bengal

Date: 20/10/2024  
Time: 14:03:59 PM  
Validity upto: 19/04/2025

Vehicle Photo with Registration plate 60 mm x 30 mm

No. No.	Pollutant (as applicable)	Units (as applicable)	Emission limits	Measured Value (over 2 thermal cycles)
1	Carbon Monoxide (CO)	percentage (%)		
2	Hydrocarbon, (THC/HC)	ppm		
3	NOx	percentage (%)		
4	Smoke Density	1/metre	2.45	0.37

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

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

Authorized Signature with stamp of PUC Operator

80mm x 20 mm

PUC Certificate

**Condition xxiii: Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.**

**Reply: - Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted periodically. All efforts are being taken to mitigate impact of blasting.**

**Condition xxiv: - Drills shall either be operated with dust extractors or equipped with water injection system.**

**Reply: - Wet drilling is in practice.**



Wet Drilling

**Condition xxv: - Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.**

**Reply: -** Water sprinkling is being carried out regularly at mineral handling area, loading and unloading areas to control the dust. Additionally, Fixed type water sprinkler has been installed near the weigh bridge to control dust emission.



Installation of Fixed Type Water Sprinkler

**Condition xxvi: - Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.**

**Reply: -** As of now there is no colony within the lease hold. However, Domestic Wastewater generated from mine office area is being collected through individual Septic Tank and followed by Soak Pit.

No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed for treatment of this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop. We are not discharging any wastewater outside the mine lease area.

Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2**.



Washing Ramp with Oil and Grease Trap System

**Condition xxvii: - The project authorities should undertake sample survey to generate data on pre project community health status within a radius of 1 km from proposed mine.**

**Reply: -** As a part of Community Health status check we regularly conduct medical camp in nearby areas since inception of Mine.

**Condition xxviii: Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.**

**Reply: -** As a company, we are truly concerned about the health and safety of our on-site workers and in consideration to that, the health examination camps are being setup/scheduled on regularly basis.

**Condition xxix: - Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for**

**cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.**

**Reply:** - We believe that the wellbeing of all the labours working within the site should be taken care of on a priority basis, so that they can work in a stress-free environment. Therefore, all the necessary infrastructure and basic facilities are being taken care of. Safe drinking water and medical facilities already provided.

**Condition xxx:** - **The critical parameters such as RSPM (Particulate matter with size less than 10µm i.e. PM10) and NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)). The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. 3-20012/1/2006- IA.11 (M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry [www.envfor.nic](http://www.envfor.nic) and shall also be referred in this regard for its compliance.**

**Reply:** Noted and being adhered. We have established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring of Ambient Air Quality and Treated Water is being carried out by NABL accredited Laboratory and reported to the concerned authorities. Monitoring Report is attached herewith as **Annexure 2**. Half-yearly EC compliance along with Environmental monitoring reports is being uploaded on company website regularly. A Display board is already installed near the mine gate office. We have also installed an online PM10 Analyzer at mine site.



PM10 Analyzer

**Condition xxxi: - A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.**

**Reply:** - Noted and will be complied in due time. Progressive mine closure plan approved along Scheme of Mining. FMCP for total lease area will be prepared and submitted in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

**General Conditions: -**

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

**Reply:** - Noted.

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

**Reply:** - Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme. Report is attached herewith as **Annexure 4.**

**Condition iii: - Conservation measures for protection of flora and fauna in the core and buffer zone should be drawn up in consultation with the local forest and wildlife department.**

**Reply:** - Conservation measures for protection of flora and fauna in core & buffer zone has been drawn up in consultation with local forest and wildlife department. Also, we prepared Integrated Site-specific Wildlife Conservation Plan (WLCP) and obtained approval from by PCCF, Wildlife, Ranchi vide Office Order No.28 dated 01.06.2023 Safeguard Measures already implemented and being implemented as suggested by forest department are as follows:

1. Minimum level of Noise during Mining.
2. Permanent pillars are established within in the mine lease area at 7.5m from the forest boundary.
3. Daily water sprinkling on haul road.
4. Transportation is carried out during daytime only.
5. Maintenance of mineral transportation road is being done regularly.
6. Social activities are being undertaken in nearby areas etc.

**Condition iv: - At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of**

**monitoring should be undertaken in consultation with the State Pollution Control Board.**

**Reply:** - We have already established four ambient air quality monitoring stations in the core zone as well as buffer zone. Monitoring of Ambient Air Quality is being carried out by NABL accredited Laboratory and reported to the concerned authorities. Monitoring Report is attached herewith as **Annexure 2**.

**Condition v: - Data on ambient air quality [(RSPM (Particulate matter with size less than 10micron i.e., PM10) and NO<sub>x</sub>] should be regularly submitted to the Ministry including its regional office located at: Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.**

**Reply:** - The monitoring of ambient air quality is being conducted by an NABL-accredited laboratory, and reports are regularly submitted to the MoEF&CC and JSPCB, Ranchi. The monitoring report is attached herewith as **Annexure 2**. Now, Regional office of MoEF&CC is in Ranchi.

**Condition vi: - Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.**

**Reply:** - Suitable water spraying arrangement is being made to control fugitive dust emissions from loading, unloading and transfer points as applicable. Photograph of the same is already attached in reply to specific condition no. xv.

**Condition vii: - Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.**

**Reply:** - Measures are being taken for control of noise levels below 85 dB (A) in the work environment. Workers engaged in operation of HEMM, etc. has been provided with ear plug / muffs. The noise level monitoring is being conducted at a regular interval. The noise level is within the prescribed norms. Report has been attached as **Annexure 2**.

**Condition viii: - Industrial wastewater (workshop and waste water from the Mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31' December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.**

**Reply:** - No wastewater is generated from our mining operation. However, only negligible amount of effluent is being generated from workshop and Oil & grease trap system is already installed for treatment of this effluent. The treated water is in close circuit and being reused for washing of vehicle in the workshop. We are not discharging any wastewater outside the mine lease area.



Furthermore, the quality of this treated water is being monitored regularly and the monitoring report is attached herewith as **Annexure 2**.



Washing Ramp with Oil and Grease Trap System

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

**Reply: -** All the workers have been provided with PPEs including dust mask and dust respirators. Apart from PPEs distribution to all workers, we are also providing adequate safety training and conducting awareness session on Safety and health aspects on regular basis. Periodical Occupational health surveillance program of the workers is being carried out and records maintained as per statute.

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

**Condition 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 Bhubaneswar.**

**Reply: -** Every year, the funds earmarked for environmental protection measures is being budgeted separately and its expenditure is being reported to the Ministry. The copy of the same is attached as **Annexure 5**. Now, the Regional Office of MoEF&CC is in Ranchi.

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

**Reply: -** It is an operational mine. Hence provisions related to financial closure is not applicable. Now, the Regional Office of MoEF&CC is in Ranchi.

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

**Reply: -** Agreed. Now, the Regional Office of MoEF&CC is in Ranchi.

**Condition xiv: - The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.**

**Reply: -** Six monthly reports on status of compliance of the stipulated environmental clearance conditions including monitoring report are being submitted to the MoEF&CC, Zonal office of CPCB & JSPCB, Ranchi and also uploaded on the website of the Hindalco's website. Now, the Regional Office of MoEF&CC is in Ranchi.

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

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

**Condition xvi: - The environmental statement for each financial year ending 31 March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.**

**Reply:** - Environment statement is being submitted regularly to Member Secretary, JSPCB. Also, the status of compliance of environmental clearance conditions is being sent to MoEF&CC and JSPCB, Ranchi on regular basis. Now, the Regional Office of MoEF&CC is in Ranchi.

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

**Reply:** - Noted and 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 MoEF&CC. Now, the Regional office of MoEF&CC is in Ranchi.

<b>Annexure 1</b>		
<b>Piezometer Reading - Bimarla Mine</b>		
<b>S No</b>	<b>Month</b>	<b>Depth (meter)</b>
1	Apr-24	63.9
2	May-24	63.7
3	Jun-24	63.4
4	Jul-24	65.8
5	Aug-24	66.3
6	Sep-24	65.4

## **ENVIROCHECK**

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

**Bimarla Bauxite Mine-Environmental Monitoring Report**

**April 2024**

## TEST REPORT

Test Report No. : ENVJK/1199/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ENVJK/2024/AA/1724
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 18.04.2024 to 19.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 64	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	78	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a, 40 CFR Part 50, Appendix L: 2006	43	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	12.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	29.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.018	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

### TEST REPORT

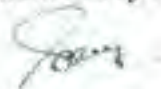
<b>Test Report No.</b> : ENVJK/1200/APR/TR(W)24-25	<b>Report Release Date</b> : 28.04.2024
<b>Work Order No.</b> : RP/MJB/MM/24/0088/00	<b>Work Order Date</b> : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
<b>Customer Name</b>	: Minerals & Minerals Limited	<b>Sample Ref. No.</b>	: ENVJK/2024/AA/1725
<b>Address</b>	: Lohardaga, Jharkhand-835302	<b>Location</b>	: Near Quarry No 1B Bimarla Bauxite Mine (134.526 ha)
<b>Mines Status</b>	: Operational	<b>Sampling Date</b>	: 18.04.2024 to 19.04.2024
<b>Period of Analysis</b>	: 22.04.2024 to 28.04.2024	<b>Sample Received Date</b>	: 22.04.2024
		<b>Type of Sample</b>	: Ambient Air
		<b>Sampling Procedure</b>	: ELES/DOC/SMPL/02
		<b>Sampling Done By</b>	: ELES Pvt. Ltd.
		<b>Sample Condition</b>	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 65	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	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	23.6	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method – TO-3 (GC-MS Method)	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method – TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

\*\*\*\*End\*\*\*\*



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

### TEST REPORT

Test Report No. : ENVJK/1201/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ENVJK/2024/AA/1726
Address	: Lohardaga, Jharkhand-835302	Location	: Nav Prathmik Vidyalaya- Barang Path: Bimaria Bauxite Mine (134.526ha)
		Sampling Date	: 18.04.2024 to 19.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 64	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	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	7.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	20.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part-26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01(Annual)


Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1



### TEST REPORT

<b>Test Report No.</b> : ENVJK/1202/APR/TR(W)24-25	<b>Report Release Date</b> : 28.04.2024
<b>Work Order No.</b> : RP/MJB/MM/24/0088/00	<b>Work Order Date</b> : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
<b>Customer Name</b>	: Minerals & Minerals Limited	<b>Sample Ref. No.</b>	: ENVJK/2024/AA/1727
<b>Address</b>	: Lohardaga, Jharkhand-835302	<b>Location</b>	: Near Mine Entry Gate: Bimarla Bauxite Mine (134.526 ha)
<b>Mines Status</b>	: Operational	<b>Sampling Date</b>	: 18.04.2024 to 19.04.2024
<b>Period of Analysis</b>	: 22.04.2024 to 28.04.2024	<b>Sample Received Date</b>	: 22.04.2024
		<b>Type of Sample</b>	: Ambient Air
		<b>Sampling Procedure</b>	: ELES/DOC/SMPL/02
		<b>Sampling Done By</b>	: ELES Pvt. Ltd.
		<b>Sample Condition</b>	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 64	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	71	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	45	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	9.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	27.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

### TEST REPORT

<b>Test Report No.</b> : ENVJK/1203/APR/TR(W)24-25	<b>Report Release Date</b> : 28.04.2024
<b>Work Order No.</b> : RP/MJB/MM/24/0088/00	<b>Work Order Date</b> : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
<b>Customer Name</b>	: Minerals & Minerals Limited	<b>Sample Ref. No.</b>	: ENVJK/2024/AA/1728
<b>Address</b>	: Lohardaga, Jharkhand-835302	<b>Location</b>	: Near Korle Village Bimarla Bauxite Mine (134.526 ha)
<b>Mines Status</b>	: Operational	<b>Sampling Date</b>	: 19.04.2024 to 20.04.2024
<b>Period of Analysis</b>	: 22.04.2024 to 28.04.2024	<b>Sample Received Date</b>	: 22.04.2024
		<b>Type of Sample</b>	: Ambient Air
		<b>Sampling Procedure</b>	: ELES/DOC/SMPL/02
		<b>Sampling Done By</b>	: ELES Pvt. Ltd.
		<b>Sample Condition</b>	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 32	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 65	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	53	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	25	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	9.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	17.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method – IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method – TO-3 (GC-MS Method)	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method – TO-3A (GC-MS Method)	<0.5	01(Annual)

Reviewed by :

(Saswata Birman Roy, Dy. Quality Manager)



Authorised Signatory :

(Bapan Das, Dy. Technical Manager)

Page 1 of 1

### TEST REPORT

Test Report No. : ENVJK/1204/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name : Minerals & Minerals Limited	Address : Lohardaga, Jharkhand-835302	Mines Status : Operational	Period of Analysis : 22.04.2024 to 28.04.2024
Sample Ref. No. : ENVJK/2024/AA/1729	Location : Near Barang Village Bimarla Bauxite Mine (134.526 ha)	Sampling Date : 18.04.2024 to 19.04.2024	Sample Received Date : 22.04.2024
Type of Sample : Ambient Air	Sampling Procedure : ELES/DOC/SMPL/02	Sampling Done By : ELES Pvt. Ltd.	Sample Condition : Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 63	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	63	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	29	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	23.6	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<1.0	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01 (Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :



(Bapan Das, Dy. Technical Manager)

Page 1 of 1

### TEST REPORT

Test Report No. : ENVJK/1205/APR/TR(W)24-25	Report Release Date : 28.04.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ENVJK/2024/AA/1730
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ghaghra Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 18.04.2024 to 19.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 64	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	59	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	34	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	22.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01(Annual)

Reviewed by :



(Saswata Burman Roy, Dy. Quality Manager)

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



Authorised Signatory :



(Bapun Das, Dy. Technical Manager)

Page 1 of 1



### TEST REPORT

<b>Test Report No.</b> : ENVJK/1206/APR/TR(W)24-25	<b>Report Release Date</b> : 28.04.2024
<b>Work Order No.</b> : RP/MJB/MM/24/0088/00	<b>Work Order Date</b> : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ENVJK/2024/AA/1731
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bimarla Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 18.04.2024 to 19.04.2024
Mines Status	: Operational	Sample Received Date	: 22.04.2024
Period of Analysis	: 22.04.2024 to 28.04.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 738
3	Relative Humidity (%)	: 63	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	64	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	USEPA 1997a,40 CFR Part 50, Appendix L: 2006	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 2): 2001	6.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part 6): 2006	21.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	USEPA Method - IO-3.5 (ICP-MS Method)	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	USEPA Method - TO-3 (GC-MS Method)	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	USEPA Method - TO-3A (GC-MS Method)	<0.5	01(Annual)

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)



Authorised Signatory :

(Bapan Das, Dy. Technical Manager)



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2818	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000784F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3158
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 17.05.2024 to 18.05.2024
Period of Analysis	: 21.05.2024 to 27.05.2024	Sample Received Date	: 21.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 34	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 62	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): 2022	80	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	13.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	29.9	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.015	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES & ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2818	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000784F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U78999JK2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2819	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000785F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3159
Address	: Lohardaga, Jharkhand-835302	Location	: Near Quarry No 1B Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 17.05.2024 to 18.05.2024
Mines Status	: Operational	Sample Received Date	: 21.05.2024
Period of Analysis	: 21.05.2024 to 27.05.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	62	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	24.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.012	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2819	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000785F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
AKASH KUMAR  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2820	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000786F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3160
Address	: Lohardaga, Jharkhand-835302	Location	: Nav Prathmik Vidyalaya- Barang Path; Bimarla Bauxite Mine(134.526ha)
		Sampling Date	: 17.05.2024 to 18.05.2024
Mines Status	: Operational	Sample Received Date	: 21.05.2024
Period of Analysis	: 21.05.2024 to 27.05.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	32	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	7.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	21.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125


## TEST REPORT

Test Report No. : ELES/RNC/2024/2820	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000786F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/2821	Report Release Date	: 27.05.2024
Work Order No.	: RP/MJB/MM/24/0088/00	Work Order Date	: 30.03.2024
ULR No.	: TC135872400000787F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3161
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Entry Gate; Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 17.05.2024 to 18.05.2024
Mines Status	: Operational	Sample Received Date	: 21.05.2024
Period of Analysis	: 21.05.2024 to 27.05.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 34	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	78	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	47	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	26.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.013	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2821	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000787F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/2825	Report Release Date	: 27.05.2024
Work Order No.	: RP/MJB/MM/24/0088/00	Work Order Date	: 30.03.2024
ULR No.	: TC135872400000791F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3165
Address	: Lohardaga, Jharkhand-835302	Location	: Near Korle Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 18.05.2024 to 19.05.2024
Period of Analysis	: 21.05.2024 to 27.05.2024	Sample Received Date	: 21.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	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): 2022	58	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	9.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	18.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.010	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999/JH2016PTC011125

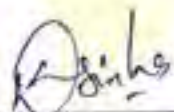
## TEST REPORT

Test Report No. : ELES/RNC/2024/2825	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000791F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U78999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2826	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000792F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3166
Address	: Lohardaga, Jharkhand-835302	Location	: Near Barang Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 18.05.2024 to 19.05.2024
Period of Analysis	: 21.05.2024 to 27.05.2024	Sample Received Date	: 21.05.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	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): 2022	59	100 (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/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	6.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	22.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2826	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000792F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



**TEST REPORT**

Test Report No. : ELES/RNC/2024/2827	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000793F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3167
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ghaghra Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 18.05.2024 to 19.05.2024
Mines Status	: Operational	Sample Received Date	: 21.05.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.05.2024 to 27.05.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	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): 2022	66	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	38	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	8.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	23.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

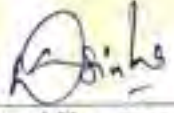
## TEST REPORT

Test Report No. : ELES/RNC/2024/2827	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000793F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2828	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000794F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/3168
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bimarla Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 18.05.2024 to 19.05.2024
Mines Status	: Operational	Sample Received Date	: 21.05.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 21.05.2024 to 27.05.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 35	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	4	Weather Condition	: Clear

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	21.9	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2828	Report Release Date : 27.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000794F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



### TEST REPORT

Test Report No. : ELES/RNC/2024/2901	Report Release Date : 28.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000861F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/DW/3173
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 17.05.2024
		Sample Received Date	: 21.05.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source/Location of Sample	: Near Office Area, Bimarla Bauxite Mine (134.526 ha)
Period of Analysis	: 21.05.2024 to 28.05.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical			Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
pH (at 25.2 °C)	-	APHA 24 <sup>th</sup> Ed.2023, 4500-H <sup>1</sup>	6.52	6.5-8.5	No Relaxation	
Turbidity	NTU	APHA 24 <sup>th</sup> Ed.2023, 2130 B	0.81	1.0	5.0	
Taste	-	APHA 24 <sup>th</sup> Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable	
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable	
Colour	Hazen	APHA 24 <sup>th</sup> Ed.2023, 2120B&D	1.0	5	15	
Total Dissolved Solids (TDS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2540B,C&D	68	500	2000	
Chloride (as Cl)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 Cl B	7.71	250	1000	
Fluoride (as F)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5	
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2320 B	37	200	600	
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2340 C	45	200	600	
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 SO <sub>4</sub> <sup>-2</sup> -E	5.0	200	400	
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 NO <sub>3</sub> -B	BDL (DL: 0.5)	45	No Relaxation	



# ENVIRONMENTAL LABORATORIES &

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TC-43587

## TEST REPORT

Test Report No. : ELES/RNC/2024/2901	Report Release Date : 28.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000861F	

Discipline : Chemical		Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	BDL (DL: 0.1)	0.2	1.0
Calcium (as Ca)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3500 Ca B	12.0	75	200
Anionic Surfactants (as MBAS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0
Discipline : Chemical		Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003; RA2019	BDL (DL: 0.02)	0.03	0.2
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation
Boron (as B)	mg/L	IS 3025 (Part-57) : 2021	BDL (DL: 0.2)	0.5	2.4
Cadmium (as Cd)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation
Total Chromium(as Cr)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation
Copper (as Cu)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5
Cyanide (as CN)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	0.079	1.0	1.0
Lead (as Pb)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation
Manganese (as Mn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation

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TC-13587

CIN: U74999JK2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2901	Report Release Date : 28.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000861F	

Discipline : Chemical		Group : Residues in Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.1)	5	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
<b>Pesticides</b>				<b>Limit</b>	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2901	Report Release Date : 28.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000861F	

Pesticides				
Parameter	Unit	Test Protocol	Result	Limit
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40
DDT(o,p and p,p-isomers of DDT,DDEand DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	1.0
Discipline : Biological		Group : Water		
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	

Remarks:1. pH and RFC done at Lab.

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74900JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2901	Report Release Date : 28.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/DW/3173
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 17.05.2024
		Sample Received Date	: 21.05.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
Period of Analysis	: 21.05.2024 to 28.05.2024	Source/Location of Sample	: Near Office Area, Bimarla Bauxite Mine (134.526 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Mineral Oil*	mg/L	CL-6, IS: 3025 (P-39)	BDL (DL: 0.1)	1.0	No Relaxation

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

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2909	Report Release Date : 28.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000869F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/EF/3176
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 19.05.2024
		Sample Received Date	: 21.05.2024
Mines Status	: Operational	Type of Sample	: Effluent Water
Period of Analysis	: 21.05.2024 to 28.05.2024	Source of Sample	: Workshop Effluent – Bimarla Bauxite Mine (134.526 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sample Collected By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 25.2°C)	-	APHA 24 <sup>th</sup> Ed.2023,4500-H <sup>+</sup>	6.54	5.5-9.0	5.5-9.0
Temperature	°C	APHA 24 <sup>th</sup> Ed.2023, 2550 B	25.1	Shall Not Exceed 5°C Above the Receiving Water Temperature	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	375	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	53.3	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	5.6	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	9.7	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	168	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	4.86	5.0	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	3.8	10	10
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	21.3	--	--

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/2909	Report Release Date : 28.05.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400000869F	

Discipline : Chemical		Group : Residues in Water		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Aluminum (as Al)	mg/L	IS 3025 (Part-55): 2003, RA2019	BDL (DL: 0.02)	--	--
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3111B	0.534	3.0	--
Zinc (as Zn)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3111 B	0.272	5.0	--

Remarks: pH done at Lab.

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3522	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001473F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4030
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 21.06.2024 to 22.06.2024
Mines Status	: Operational	Sample Received Date	: 24.06.2024
Period of Analysis	: 24.06.2024 to 29.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 31	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 62	4	Weather Condition : Partly Cloudy

### Discipline: Chemical

### Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	83	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	49	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	13.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	29.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.014	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3522	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001473F	

Discipline: Chemical

Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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Website : [www.elespl.co.in](http://www.elespl.co.in)



## TEST REPORT

Test Report No. : ELES/RNC/2024/3523	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001474F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4031
Address	: Lohardaga, Jharkhand-835302	Location	: Near Quarry No 1B Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 21.06.2024 to 22.06.2024
Mines Status	: Operational	Sample Received Date	: 24.06.2024
Period of Analysis	: 24.06.2024 to 29.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

### METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	4	Weather Condition	: Partly Cloudy

### Discipline: Chemical

### Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	36	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.9	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.01	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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# ENVIRONMENTAL LABORATORIES &

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



CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3523	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001474F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
AKASH KUMAR  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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## TEST REPORT

Test Report No. : ELES/RNC/2024/3524	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001475F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4032
Address	: Lohardaga, Jharkhand-835302	Location	: Nav Prathmik Vidyalaya- Barang Path; Bimarla Bauxite Mine(134.526ha)
		Sampling Date	: 21.06.2024 to 22.06.2024
Mines Status	: Operational	Sample Received Date	: 24.06.2024
Period of Analysis	: 24.06.2024 to 29.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	57	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	7.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	22.8	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/3524	Report Release Date	: 29.06.2024
Work Order No.	: RP/MJB/MM/24/0088/00	Work Order Date	: 30.03.2024
ULR No.	: TC135872400001475F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3525	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001476F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4033
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Entry Gate; Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 21.06.2024 to 22.06.2024
Mines Status	: Operational	Sample Received Date	: 24.06.2024
Period of Analysis	: 24.06.2024 to 29.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 62	4	Weather Condition	: Partly Cloudy

### Discipline: Chemical

### Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	82	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	49	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	10.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	27.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.17	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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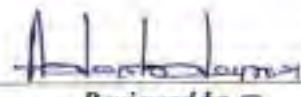


CIN: U74999JH2018PTC031125

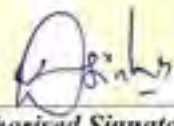
## TEST REPORT

Test Report No. : ELES/RNC/2024/3525	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001476F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

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# ENVIRONMENTAL LABORATORIES &

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EW: U78900MH2018PTC011123

## TEST REPORT

Test Report No.	: ELES/RNC/2024/3530	Report Release Date	: 29.06.2024
Work Order No.	: RP/MJB/MM/24/0088/00	Work Order Date	: 30.03.2024
ULR No.	: TC135872400001481F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4038
Address	: Lohardaga, Jharkhand-835302	Location	: Near Korle Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 22.06.2024 to 23.06.2024
Mines Status	: Operational	Sample Received Date	: 24.06.2024
Period of Analysis	: 24.06.2024 to 29.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 63	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	54	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	29	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	8.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	18.3	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.008	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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### TEST REPORT

Test Report No. : ELES/RNC/2024/3530	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001481F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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## TEST REPORT

Test Report No.	: ELES/RNC/2024/3531	Report Release Date	: 29.06.2024
Work Order No.	: RP/MJB/MM/24/0088/00	Work Order Date	: 30.03.2024
ULR No.	: TC135872400001482F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4039
Address	: Lohardaga, Jharkhand-835302	Location	: Near Barang Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 22.06.2024 to 23.06.2024
Mines Status	: Operational	Sample Received Date	: 24.06.2024
Period of Analysis	: 24.06.2024 to 29.06.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 63	4	Weather Condition	: Partly Cloudy

### Discipline: Chemical

### Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.9	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3531	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001482F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2012PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3532	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001483F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4040
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ghaghra Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 22.06.2024 to 23.06.2024
Period of Analysis	: 24.06.2024 to 29.06.2024	Sample Received Date	: 24.06.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 63	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	61	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/m <sup>3</sup>	IS 5182 (Part- 11/Sec- 1): 2023	8.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	24.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3532	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001483F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999HR2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/3533	Report Release Date	: 29.06.2024
Work Order No.	: RP/MJB/MM/24/0088/00	Work Order Date	: 30.03.2024
ULR No.	: TC135872400001484F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4041
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bimarla Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 22.06.2024 to 23.06.2024
Mines Status	: Operational	Sample Received Date	: 24.06.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 24.06.2024 to 29.06.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 31	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 63	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	60	100 (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/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	6.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	22.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/3533	Report Release Date : 29.06.2024
Work Order No. : RP/MJB/MM/24/0088/00	Work Order Date : 30.03.2024
ULR No. : TC135872400001484F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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TC-13887

CIN: U74993JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4200	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002135F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4863
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 20.07.2024 to 21.07.2024
Mines Status	: Operational	Sample Received Date	: 23.07.2024
Period of Analysis	: 23.07.2024 to 29.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	72	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	35	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	11.8	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	25.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.011	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4200	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002135F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-13887

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4201	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002136F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4864
Address	: Lohardaga, Jharkhand-835302	Location	: Near Quarry No 1B Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 20.07.2024 to 21.07.2024
Period of Analysis	: 23.07.2024 to 29.07.2024	Sample Received Date	: 23.07.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION				
1	Average Temperature (°C)	: 29	2 Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4 Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	57	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	23.6	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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TC-13587

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4201	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002136F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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





# ENVIRONMENTAL LABORATORIES &

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TC-13587

CIN: U74909JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4202	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002137F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4865
Address	: Lohardaga, Jharkhand-835302	Location	: Nav Prathmik Vidyalaya- Barang Path; Biharla Bauxite Mine(134.526ha)
Mines Status	: Operational	Sampling Date	: 20.07.2024 to 21.07.2024
Period of Analysis	: 23.07.2024 to 29.07.2024	Sample Received Date	: 23.07.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C) : 29	2	Barometric Pressure (mmHg) : 742
3	Relative Humidity (%) : 67	4	Weather Condition : Cloudy

### Discipline: Chemical

### Group: Atmospheric Pollution

Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	67	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	41	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	9.7	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	27.5	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.015	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-13587

CIN: U74993JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4202	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002137F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06; 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05; 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4203	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002138F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4866
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Entry Gate; Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 20.07.2024 to 21.07.2024
Mines Status	: Operational	Sample Received Date	: 23.07.2024
Period of Analysis	: 23.07.2024 to 29.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 67	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	26	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	18.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TC-13587

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4203	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002138F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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

Page 2 of 2

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TC-12087

CIN: U74909JH2012PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4204	Report Release Date	: 29.07.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002139F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4867
Address	: Lohardaga, Jharkhand-835302	Location	: Near Korle Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 21.07.2024 to 22.07.2024
Mines Status	: Operational	Sample Received Date	: 23.07.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 23.07.2024 to 29.07.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	59	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	7.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	15.4	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011175

# ENVIRONMENTAL LABORATORIES &

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TC-15887

## TEST REPORT

Test Report No. : ELES/RNC/2024/4204	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002139F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
 Reviewed by  
**AKASH KUMAR**  
 Quality Manager  
 ELES PVT. LTD

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

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

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TC-1387

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4205	Report Release Date	: 29.07.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002140F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4868
Address	: Lohardaga, Jharkhand-835302	Location	: Near Barang Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 21.07.2024 to 22.07.2024
Mines Status	: Operational	Sample Received Date	: 23.07.2024
Period of Analysis	: 23.07.2024 to 29.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION				
1	Average Temperature (°C)	: 28	2 Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 69	4 Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	61	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	30	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	6.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	17.6	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.010	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TC-13587

CIN: U74999JH2018PTC011325

## TEST REPORT

Test Report No. : ELES/RNC/2024/4205	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002140F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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





# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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TC-13557

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4206	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002141F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4869
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ghaghra Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 21.07.2024 to 22.07.2024
Period of Analysis	: 23.07.2024 to 29.07.2024	Sample Received Date	: 23.07.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	53	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	6.4	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	19.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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TC-13587

CIN: U74905JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4206	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002141F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT LTD.

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

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

Page 2 of 2

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**"Save Environment, Save Future"**



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TC-13587

CIN: U74999JH2018PTC031125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4207	Report Release Date	: 29.07.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002142F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/4870
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bimarla Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 21.07.2024 to 22.07.2024
Mines Status	: Operational	Sample Received Date	: 23.07.2024
Period of Analysis	: 23.07.2024 to 29.07.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 28	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 69	4	Weather Condition	: Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	58	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	19.5	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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# ENVIRONMENTAL LABORATORIES &

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TC-13887

## TEST REPORT

Test Report No. : ELES/RNC/2024/4207	Report Release Date : 29.07.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002142F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4851	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002770F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5546
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	64	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	31	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	9.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	20.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.008	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

Page 1 of 2

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4851	Report Release Date : 27.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002770F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
AKA Bhatnagar  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

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TC-13587

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4852	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002771F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5547
Address	: Lohardaga, Jharkhand-835302	Location	: Near Quarry No 1B Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	24	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	18.8	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/4852	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002771F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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





CIN: U74999JH2018PTC031125

# ENVIRONMENTAL LABORATORIES &

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4853	Report Release Date : 27.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002772F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5548
Address	: Lohardaga, Jharkhand-835302	Location	: Nav Prathmik Vidyalaya- Barang Path; Bimarla Bauxite Mine(134.526ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	43	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 11/Sec- 1): 2023	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	16.2	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4853	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002772F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4854	Report Release Date	: 27.08.2024
Work Order No.	: RP/MIB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002773F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5549
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Entry Gate; Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	60	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	33	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	5.9	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	21.7	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.009	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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## TEST REPORT

Test Report No.	: ELES/RNC/2024/4854	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002773F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4855	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002774F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5550
Address	: Lohardaga, Jharkhand-835302	Location	: Near Korle Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

## METEOROLOGICAL INFORMATION

1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	51	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	18	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	6.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	12.7	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

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TC-13587

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4855	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002774F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



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CIN: U74999JH2018PTC031125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4856	Report Release Date : 27.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002775F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5551
Address	: Lohardaga, Jharkhand-835302	Location	: Near Barang Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	15.1	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4856	Report Release Date : 27.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002775F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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





CIN: U74999JH2018PTC011125

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TC-13587

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4857	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002776F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5552
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ghaghra Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	48	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	23	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- II/Sec- 1): 2023	5.5	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	17.5	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)



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CIN: U74999/JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4857	Report Release Date : 27.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002776F	

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4858	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002777F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/5553
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bimarla Village Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 16.08.2024 to 17.08.2024
Mines Status	: Operational	Sample Received Date	: 20.08.2024
Period of Analysis	: 20.08.2024 to 27.08.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 29	2	Barometric Pressure (mmHg)	: 742
3	Relative Humidity (%)	: 65	4	Weather Condition	: Partly Cloudy

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	52	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	27	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- II/Sec- 1): 2023	5.2	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	17.2	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No.	: ELES/RNC/2024/4858	Report Release Date	: 27.08.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400002777F		

Discipline: Chemical		Group: Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by

**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



CIN: U74999JH2016PTC031123

# ENVIRONMENTAL LABORATORIES &

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4878	Report Release Date : 29.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002795F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/DW/5556
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.08.2024
		Sample Received Date	: 20.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source of Sample	: Tap Water
Period of Analysis	: 20.08.2024 to 27.08.2024	Location of Sample	: Office (Bimarla Bauxite Mine)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
pH (at 24.7 °C)	-	APHA 24 <sup>th</sup> Ed.2023, 4500-H	6.60	6.5-8.5	No Relaxation
Turbidity	NTU	APHA 24 <sup>th</sup> Ed.2023, 2130 B	0.96	1.0	5.0
Taste	-	APHA 24 <sup>th</sup> Ed.2023, 2160 C	Agreeable	Agreeable	Agreeable
Odour	-	IS 3025 (Part-5) :2018	Agreeable	Agreeable	Agreeable
Colour	Hazen	APHA 24 <sup>th</sup> Ed.2023, 2120B&D	1.0	5.0	15
Total Dissolved Solids (TDS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2540B,C&D	100	500	2000
Chloride (as Cl)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 Cl B	6.6	250	1000
Fluoride (as F)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 F-D	BDL (DL: 0.1)	1.0	1.5
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2320 B	39.9	200	600
Total Hardness (as CaCO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 2340 C	47.2	200	600
Sulphate (as SO <sub>4</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 SO <sub>4</sub> <sup>-2</sup> -E	6.48	200	400
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 NO <sub>3</sub> -B	1.62	45	No Relaxation

Page 1 of 4

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**"Save Environment, Save Future"**



CIN: U74999JH2018PTC011125

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TC-19987

## TEST REPORT

Test Report No. : ELES/RNC/2024/4878	Report Release Date : 29.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002795F	

Discipline : Chemical			Group : Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit	
Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part 43/Sec1): 2022	BDL (DL: 0.001)	0.001	0.002	
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26): 2021	0.34	0.2(Min)	1.0(Min)	
Calcium (as Ca)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3500 Ca B	14.2	75	200	
Anionic Surfactants (as MBAS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 5540-C	BDL (DL: 0.025)	0.2	1.0	
Discipline : Chemical			Group : Residues in Water			
Aluminum (as Al)	mg/L	IS 3025 (Part-55) :2003: RA2019	BDL (DL: 0.02)	0.03	0.2	
Arsenic (as As)	mg/L	IS 3025 (Part-37): 2022	BDL (DL: 0.005)	0.01	No Relaxation	
Boron (as B)	mg/L	IS 3025 (Part-57) : 2021	BDL (DL: 0.2)	0.5	1.0	
Cadmium (as Cd)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.003)	0.003	No Relaxation	
Total Chromium (as Cr)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05	No Relaxation	
Copper (as Cu)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05	1.5	
Cyanide (as CN)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05	No Relaxation	
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	0.089	1.0	No Relaxation	
Lead (as Pb)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.01)	0.01	No Relaxation	
Manganese (as Mn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.05)	0.1	0.3	
Mercury (as Hg)	mg/L	IS 3025 (Part-48): 2019	BDL (DL: 0.001)	0.001	No Relaxation	
Selenium (as Se)	mg/L	IS 3025 (Part-56): 2019	BDL (DL: 0.01)	0.01	No Relaxation	

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**"Save Environment, Save Future"**



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2012BP001125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4878	Report Release Date : 29.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002795F	

Discipline : Chemical		Group : Residues in Water		Regulatory Limit as per IS10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Zinc (as Zn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.1)	5.0	15
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	0.1	No Relaxation
Polychlorinated biphenyls (PCB)	µg/L	ELES/GC/SOP/03: 2023	BDL (DL: 0.1)	0.5	No Relaxation
<b>Pesticides</b>				<b>Limit</b>	
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	20	
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	125	
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	30	
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	3.0	
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	190	
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	0.30	
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	1.0	
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	2.0	
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--	
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	0.03	
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	0.01	
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04	

Page 3 of 4

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CIN: U74999JH2018PTC011225

# ENVIRONMENTAL LABORATORIES &

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TC-12587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4878	Report Release Date : 29.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002795F	

Pesticides				
Parameter	Unit	Test Protocol	Result	Limit
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	0.04
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	2.0
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	0.40
DDT(ο,p and p,p-isomers of DDT) (ο,p DDE and p,p DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	1.0
Discipline : Biological		Group : Water		
Total Coliform (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	Shall not be detected
Escherichia coli (Qualitative)	Per 100 mL	IS 15185: 2021	Not Detected	

Remarks: 1. pH and RFC done at Lab.

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD

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

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

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/4878	Report Release Date : 29.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/DW/5556
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 18.08.2024
		Sample Received Date	: 20.08.2024
Mines Status	: Operational	Type of Sample	: Drinking Water
		Source of Sample	: Tap Water
Period of Analysis	: 20.08.2024 to 29.08.2024	Location of Sample	: Office (Bimarla Bauxite Mine)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Regulatory Limit as per IS 10500:2012	
Parameter	Unit	Test Protocol	Result	Acceptable Limit	Permissible Limit
Mineral Oil*	mg/L	IS 3025 (Part-39): 2021, Clause 6 Infrared Spectroscopic method.	BDL (DL: 0.01)	0.5	No Relaxation

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

Reviewed by  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSARQVAR ENCLAVE, TUPUDANA  
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CIN: U74999JH2018PTC011173

TC-13887

## TEST REPORT

Test Report No. : ELES/RNC/2024/4880	Report Release Date : 29.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002797F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/EF/5557
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 17.08.2024
		Sample Received Date	: 20.08.2024
Mines Status	: Operational	Type of Sample	: Effluent Water
		Source of Sample	: Workshop Effluent – Bimarla Bauxite Mine (134.526 ha)
Period of Analysis	: 20.08.2024 to 27.08.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Pollution & Environment		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
pH (at 24.7°C)	-	APHA 24 <sup>th</sup> Ed.2023,4500-H <sup>1</sup>	6.32	5.5-9.0	5.5-9.0
Temperature	°C	APHA 24 <sup>th</sup> Ed.2023, 2550 B	24.9	Shall Not Exceed 5°C Above the Receiving Water Temperature	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	396	--	--
Total Suspended Solids (TSS)	mg/L	IS 3025 (Part-17): 2022	48.4	100	200
Dissolved Oxygen (DO)	mg/L	IS 3025 (Part-38): 2019	5.8	--	--
Biochemical Oxygen Demand (BOD) (at 27 °C for 3 days)	mg/L	IS 3025 (Part-44): 2023	15.3	30	100
Chemical Oxygen Demand (COD)	mg/L	IS 3025 (Part-58): 2023	179	250	--
Dissolved Phosphate (as P)	mg/L	IS 3025 (Part-31/Sec-1): 2022	3.40	5.0	--
Oil & Grease	mg/L	IS 3025 (Part-39): 2021	3.2	10	10
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	19.7	--	--

Page 1 of 2

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CIN: U74999/JH2018PTC011125

# ENVIRONMENTAL LABORATORIES &

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TC-13587

## TEST REPORT

Test Report No. : ELES/RNC/2024/4880	Report Release Date : 29.08.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400002797F	

Discipline : Chemical		Group : Residues in Water		Discharge Limits – CPCB EPR, 1986 Schedule VI	
Parameter	Unit	Test Protocol	Result	Inland Surface Water	Land for Irrigation
Aluminium (as Al)	mg/L	IS 3025 (Part-55); 2003, RA2019	BDL (DL: 0.02)	--	--
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3111B	0.166	3.0	--
Zinc (as Zn)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 3111 B	BDL (DL: 0.1)	5.0	--

Remarks: pH done at Lab.

**Reviewed by**  
**AKASH KUMAR**  
Quality Manager  
ELES PVT. LTD.

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

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



# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74899JH2013PTCO11125


## TEST REPORT

Test Report No. : ELES/RNC/2024/5614	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003512F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6510
Address	: Lohardaga, Jharkhand-835302	Location	: Near Weigh Bridge Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 20.09.2024 to 21.09.2024
Mines Status	: Operational	Sample Received Date	: 23.09.2024
		Type of Sample	: Ambient Air
Period of Analysis	: 23.09.2024 to 30.09.2024	Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	47	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	14.6	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.006	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05 (Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01 (Annual)

  
Reviewed by  
**Akash Kumar**  
Quality Manager

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D. Environmental Engg.  
Technical Manager

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

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TC-13987

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5615	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003513F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6511
Address	: Lohardaga, Jharkhand-835302	Location	: Near Quarry No 1B Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 20.09.2024 to 21.09.2024
Mines Status	: Operational	Sample Received Date	: 23.09.2024
Period of Analysis	: 23.09.2024 to 30.09.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	43	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	19	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	5.1	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	13.3	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**Akash Kumar**  
Quality Manager

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

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

Page 1 of 1

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"Save Environment, Save Future"



# ENVIRONMENTAL LABORATORIES &

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

ENGINEERING SERVICES PVT. LTD.

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Phone no.: 0651-2290103  
Website : [www.elespl.co.in](http://www.elespl.co.in)



CIN: U74999JH2018PTC011125


## TEST REPORT

Test Report No. : ELES/RNC/2024/5616	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003514F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6512
Address	: Lohardaga, Jharkhand-835302	Location	: Nav Prathmik Vidyalaya- Barang Path; Bimarla Bauxite Mine(134.526ha)
Mines Status	: Operational	Sampling Date	: 20.09.2024 to 21.09.2024
Period of Analysis	: 23.09.2024 to 30.09.2024	Sample Received Date	: 23.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	37	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	18	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	15.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**Akash Kumar**  
Quality Manager

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

  
Dr. **Deepika Kumar Sinha**  
Ph. D. Environmental Engg.  
Technical Manager

Page 1 of 1

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

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999HR2018PTC013125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5617	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003515F	


CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6513
Address	: Lohardaga, Jharkhand-835302	Location	: Near Mine Entry Gate; Bimarla Bauxite Mine (134.526 ha)
		Sampling Date	: 20.09.2024 to 21.09.2024
Mines Status	: Operational	Sample Received Date	: 23.09.2024
Period of Analysis	: 23.09.2024 to 30.09.2024	Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	39	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	17.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**Akash Kumar**  
Quality Manager

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

  
**Dr. Dabindra Kumar Sinha**  
Ph. D. Environmental Engg.  
Technical Manager

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# ENVIRONMENTAL LABORATORIES &

ENGINEERING SERVICES PVT. LTD.

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5618	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003516F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6514
Address	: Lohardaga, Jharkhand-835302	Location	: Near Korle Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 20.09.2024 to 21.09.2024
Period of Analysis	: 23.09.2024 to 30.09.2024	Sample Received Date	: 23.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	42	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	13.5	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**Akash Kumar**  
Quality Manager

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

Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D. Environmental Engg.  
Technical Manager

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5619	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003517F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6515
Address	: Lohardaga, Jharkhand-835302	Location	: Near Barang Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 20.09.2024 to 21.09.2024
Period of Analysis	: 23.09.2024 to 30.09.2024	Sample Received Date	: 23.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	55	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	28	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	5.3	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	15.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	0.007	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
**Akash Kumar**  
Quality Manager

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

Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D. Environmental Engg.  
Technical Manager

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# ENVIRONMENTAL LABORATORIES &

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5620	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003518F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6516
Address	: Lohardaga, Jharkhand-835302	Location	: Near Ghaghra Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 20.09.2024 to 21.09.2024
Period of Analysis	: 23.09.2024 to 30.09.2024	Sample Received Date	: 23.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	µg/m <sup>3</sup>	IS 5182 (Part- 23): 2022	40	100 (24hrs)
Particulate Matter (PM2.5)	µg/m <sup>3</sup>	IS 5182 (Part- 24): 2019	21	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 2/Sec1): 2023	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 6): 2022	15.1	80 (24hrs)
Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	mg/m <sup>3</sup>	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	µg/m <sup>3</sup>	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	ng/m <sup>3</sup>	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	ng/m <sup>3</sup>	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	ng/m <sup>3</sup>	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

Reviewed by  
Akashi Kumar  
Quality Manager

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

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

Page 1 of 1

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# ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA  
HATIA, RANCHI-834003 (JHARKHAND)  
GST NO:- 20AAACE97130124

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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5621	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003519F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/AA/6517
Address	: Lohardaga, Jharkhand-835302	Location	: Near Bimarla Village Bimarla Bauxite Mine (134.526 ha)
Mines Status	: Operational	Sampling Date	: 20.09.2024 to 21.09.2024
Period of Analysis	: 23.09.2024 to 30.09.2024	Sample Received Date	: 23.09.2024
		Type of Sample	: Ambient Air
		Sampling Procedure	: ELES/DOC/SMPL/02
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical		Group : Atmospheric Pollution		
Parameter	Unit	Test Protocol	Result	Regulatory Limit
Particulate Matter (PM10)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 23): 2022	43	100 (24hrs)
Particulate Matter (PM2.5)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 24): 2019	20	60 (24hrs)
Sulphur Di-Oxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 2/Sec1): 2023	<5.0	80 (24hrs)
Nitrogen Di-Oxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 6): 2022	15.5	80 (24hrs)
Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 9): 2019	<20.0	100 (8hrs)
Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 25): 2018	<10.0	400 (24hrs)
Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	IS 5182 (Part- 10): 2019 (NDIR Method)	<1.0	2 (8hrs)
Lead (Pb)	$\mu\text{g}/\text{m}^3$	IS 5182 (Part- 22): 2019	<0.002	1 (24hrs)
Nickel (Ni)	$\text{ng}/\text{m}^3$	IS 5182 (Part- 26): 2020	<6.0	20 (Annual)
Arsenic (As)	$\text{ng}/\text{m}^3$	ELES/AIR/SOP/01: 2021	<2.0	06 (Annual)
Benzene (C <sub>6</sub> H <sub>6</sub> )	$\mu\text{g}/\text{m}^3$	ELES/GC/SOP/06: 2023	<2.5	05(Annual)
Benzo-(a)-Pyrene	$\text{ng}/\text{m}^3$	ELES/GC/SOP/05: 2023	<0.5	01(Annual)

  
Reviewed by  
**Akash Kumar**  
Quality Manager

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

  
Authorized Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D. Environmental Engg.  
Technical Manager

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TC-13587

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5623	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003521F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sampling Date	: 20.09.2024 to 21.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 23.09.2024
		Type of Sample	: Ambient Noise
		Sampling procedure	: ELES/DOC/SMPL/03
		Sampling Done By	: ELES Pvt. Ltd.
Mines Status	: Operational	Period of Analysis	: 23.09.2024 to 30.09.2024

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 68	4	Weather Condition	: Cloudy

Discipline : Chemical			Group : Atmospheric Pollution		
Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
Near Mine Office Bimarla Bauxite Mine (134.526 ha)	dB(A)	IS 9989: 2020	Time	$L_{eq}$	75 dB(A) Day Time & 70 dB(A) Night Time
			Day Time	62	
Sample ID: ELES/RNC/2024/AN/6519			Night Time	48	



Reviewed by

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

Authorised Signatory  
**Dr. Deependra Kumar Sinha**  
Ph. D. Environmental Engg,  
Technical Manager

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CIN: U74999JH2018PTC011125

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TC-13881

## TEST REPORT

Test Report No.	: ELES/RNC/2024/5625	Report Release Date	: 30.09.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400003523F		

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sampling Date	: 21.09.2024
Address	: Lohardaga, Jharkhand-835302	Sampling Received Date	: 23.09.2024
		Type of Sample	: Workzone Noise
Mines Status	: Operational	Sampling procedure	: ELES/DOC/SMPL/03
		Sample Drawn By	: ELES Pvt. Ltd.
		Period of Analysis	: 23.09.2024 to 30.09.2024

METEOROLOGICAL INFORMATION					
1	Average Temperature (°C)	: 27	2	Barometric Pressure (mmHg)	: 741
3	Relative Humidity (%)	: 66	4	Weather Condition	: Cloudy

Location	Unit	Test Protocol	Result		Regulatory Limit (Industrial Zone)
			Time	L <sub>eq</sub>	
Bimarla Mine Area - Bimarla Bauxite Mine (134.526 ha)	dB(A)	IS 4758: 2017	Day Time	73	90 dB (A)
Sample ID: ELES/RNC/2024/WN/6521					



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

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

Page 1 of 1

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TC-13587

CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5609	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003507F	

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6505
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 21.09.2024
		Sample Received Date	: 23.09.2024
Mines Status	: Operational	Type of Sample	: Surface Water
		Source of Sample	: Spring Water
Period of Analysis	: 23.09.2024 to 30.09.2024	Location of Sample	: Korly Nadi, Bimarla Bauxite Mine (134.526 ha)
		Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
pH (at 24.8 °C)	-	IS 3025 (Part-11) : 2022	6.60	6.5-8.5
Colour	Hazen	IS 3025 (Part-4) : 2021	5.0	300
Odour	-	IS 3025 (Part-5) : 2018	Unobjectionable	--
Turbidity	NTU	IS 3025 (Part-10): 2023	1.05	--
Total Dissolved Solids (TDS)	mg/L	IS 3025 (Part-16): 2023	108	1500
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-23) : 2023	32.5	--
Total Hardness (as CaCO <sub>3</sub> )	mg/L	IS 3025 (Part-21): 2019	48.6	--
Sulphate (as SO <sub>4</sub> )	mg/L	IS 3025 (Part-24/Sec1): 2022	6.18	400
Chloride (as Cl)	mg/L	IS 3025 (Part-32): 2019	16.5	600
Fluoride (as F)	mg/L	IS 3025 (Part-60): 2019	BDL (DL: 0.1)	1.5
Nitrate (as NO <sub>3</sub> )	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 NO <sub>3</sub> -B	2.14	50

Page 1 of 4

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TC-1358T

## TEST REPORT

Test Report No.	: ELES/RNC/2024/5609	Report Release Date	: 30.09.2024
Work Order No.	: RP/MJB/MM/24/0088/01	Work Order Date	: 30.03.2024
ULR No.	: TC135872400003507F		

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Free Residual Chlorine (RFC)	mg/L	IS 3025 (Part-26) : 2021	BDL (DL: 0.1)	--
Phenols Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/L	IS 3025 (Part-43/Sec1): 2022	BDL (DL: 0.001)	0.005
Calcium (as Ca)	mg/L	IS 3025 (Part-40): 2019	13.2	--
Discipline : Chemical		Group : Residues in Water		
Aluminium (as Al)	mg/L	IS 3025 (Part-55): 2003;RA2019	BDL (DL: 0.02)	--
Arsenic (as As)	mg/L	IS 3025 (Part 37):2022	BDL (DL: 0.005)	0.2
Boron (as B)	mg/L	IS 3025 (Part-57): 2021	BDL (DL: 0.2)	--
Cadmium (as Cd)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.003)	0.01
Total Chromium (as Cr)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	0.05
Copper (as Cu)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.03)	1.5
Iron (as Fe)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	0.148	50
Lead (as Pb)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.01)	0.1
Manganese (as Mn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.05)	--
Mercury (as Hg)	mg/L	IS 3025(Part-48): 1994; RA2019	BDL (DL: 0.001)	--
Selenium (as Se)	mg/L	IS 3025(Part-56): 2019	BDL (DL: 0.01)	0.05
Zinc (as Zn)	mg/L	APHA 24 <sup>th</sup> Ed.2023; 3111B	BDL (DL: 0.1)	15



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CIN: U74999JH2018PTC011125

## TEST REPORT

Test Report No. : ELES/RNC/2024/5609	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003507F	

Discipline : Chemical		Group : Residues in Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Cyanide (as CN)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 4500 CN-E	BDL (DL: 0.012)	0.05
Polynuclear Aromatic Hydrocarbons (PAH)	µg/L	ELES/GC/SOP/04: 2023	BDL (DL: 0.05)	--
<b>Pesticides</b>				
Alachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Atrazine	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Butachlor	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Chlorpyrifos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Ethion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Malathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Methyl parathion	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.1)	--
Monocrotophos	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Phorate Sulphone	µg/L	ELES/GC/SOP/01: 2023	BDL (DL: 0.5)	--
Dieldrin	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.01)	--





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Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024
ULR No. : TC135872400003507F	

Pesticides				Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Alpha HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.006)	--
Beta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Delta HCH	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Gamma HCH (Lindane)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.02)	--
Endosulfan (alpha, beta and sulphate)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
DDT(o,p and p,p-isomers of DDT) ( DDE and DDD)	µg/L	ELES/GC/SOP/02: 2023	BDL (DL: 0.05)	--
<b>Discipline: Biological</b>		<b>Group : Water</b>		
Total Coliform	CFU/100 mL	IS 15185: 2021	2.68×10 <sup>2</sup>	--
Escherichia coli	CFU/100 mL	IS 15185: 2021	BDL (DL: 1.0)	--

Remarks: pH & RFC done at Lab.



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

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

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## TEST REPORT

Test Report No. : ELES/RNC/2024/5609	Report Release Date : 30.09.2024
Work Order No. : RP/MJB/MM/24/0088/01	Work Order Date : 30.03.2024

CUSTOMER DETAILS		SAMPLE DETAILS	
Customer Name	: Minerals & Minerals Limited	Sample Ref. No.	: ELES/RNC/2024/SW/6505
Address	: Lohardaga, Jharkhand-835302	Sampling Date	: 21.09.2024
		Sample Received Date	: 23.09.2024
		Type of Sample	: Surface Water
Mines Status	: Operational	Source of Sample	: Spring Water
		Location of Sample	: Korly Nadi, Bimarla Bauxite Mine (134.526 ha)
Period of Analysis	: 23.09.2024 to 30.09.2024	Sampling Procedure	: ELES/DOC/SMPL/01
		Sampling Done By	: ELES Pvt. Ltd.
		Sample Condition	: Sealed & Preserved

Discipline : Chemical		Group : Water		Tolerance Limits
Parameter	Unit	Test Protocol	Result	as per IS 2296-1992 Class C (Inland Surface Water)
Taste	-	APHA 24 <sup>th</sup> Ed.2023, 2160C	N/A	--
Anionic Surfactants (as MBAS)	mg/L	APHA 24 <sup>th</sup> Ed.2023, 5540-C	BDL (DL: 0.025)	1.0
Mineral Oil*	mg/L	IS 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method)	BDL (DL: 0.01)	--

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



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

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

# MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

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Ref. :

Date .....

Annexure 3

Date – 22.11.2024

## Office Order

Environmental Cell has been re-constituted at Bimarla Bauxite Mine (Area 134.526 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Minerals & Minerals Industries Limited.

1. Mr. Kiran Shankar Singh (Coordinator)
2. Mr. Mihir Barai - 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)

## Annexure 4

<b>Production, Mined Out, Back Filled and Over Burden removal from April'24 to September'24</b>								
<b>S No</b>	<b>Name of the Mines</b>	<b>Mining lease area (ha)</b>	<b>Production Capacity (MT)*</b>	<b>Lease Period*</b>	<b>Production (MT)</b>	<b>Mined out area (ha)</b>	<b>Back filled area (ha)</b>	<b>Over burden (Cu.M)</b>
1	Bagru Bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	NIL	NIL	NIL	NIL
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	82481	0.25	0.57	191521.65
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	63197	0.45	0.35	26905.95
4	Pakhar (8.09) Bauxite Mine	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
5	Pakhar (35.12) Bauxite Mine	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL
6	Pakhar (115.13) Bauxite Mine	115.13	300000	19.07.1996 to 31.03.2030	96744	4.29	8.89	365249.34
7	Sherangdag-A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	6200	0.23	0.2	10200.00
8	Serangdag-B Bauxite Mine	77.89	100000	04.10.1978 to 31.03.2030	49850	0.96	0.85	104303.82
9	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	12450	0.14	0.12	13050.63
10	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	96115	4.69	2.46	185023.98
11	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	7175	0.97	0.43	21377.24
12	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	49120	5.28	3.56	137098.55
13	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	87109	2.153	0.987	225462.85

**Annexure 4**

<b>Minerals &amp; Minerals Limited</b>								
14	Pakhar (109.507) Bauxite Mine	109.507	280000	26.07.2008 to 25.07.2058	147714.95	2.06	2.60	160334.49
15	Pakhar (15.58) Bauxite Mine	15.58	60000	28.04.1965 to 31.03.2030	NIL	NIL	NIL	NIL
16	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	78750	4.44	7.35	116233.81
17	Amtipani Chirodih Bauxite Mine	130.01	450000	11.01.2017 to 10.01.2067	140900	4.25	1.50	235195.494

\*Static information about the mines included in the above table



**Basudev Gangopadhyay**  
**AVP (Planning, Environment and Compliance)**

## Annexure-5

### **BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2024-25**

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), Pakhars (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.

<b>S No</b>	<b>Description</b>	<b>Budget (in Rupees) FY 2024-25 (From Apr'24 to Sep'24)</b>	<b>Actual (in Rupees) FY 2024-25 (From Apr'24 to Sep'24)</b>
1	Pollution Control & Environment monitoring	61,35,000.00	53,47,442.83
2	Reclamation/ Back filing & Rehabilitation**	5,62,80,000.00	5,60,24,564.93
3	Green belt, Plantation & Water sprinkling arrangement	73,42,000.00	69,41,114.17
4	Rural Development	2,75,00,000.00	2,05,55,592.67

\*\*Part of OB removed cost.



Basudev Gangopadhyay  
AVP (Planning, Environment & Compliance)



## ENVIRONMENT POLICY

We, at Hindalco Industries Limited, operating across the process chain from mining to semi-fabricated products in non-ferrous metals, will strive to continually improve our environmental performance for sustainable operations and responsible growth globally, by integrating sound environmental systems & practices and Pollution Prevention approach.

To achieve this, we shall:

- Continue to comply with all applicable legal and other requirements on environment.
- Continually improve environmental performance by strengthening the Environmental Management System conforming to national /international standards, including setting up and reviewing targets and measuring, monitoring and reporting their progress.
- Allocate sufficient resources such as organisational structure, technology and funds for implementation of the policy and for regular monitoring of performance.
- Adopt pollution prevention approach for all our processes; enhance material efficiency and achieve high productivity.
- Conserve key resources like electricity, coal, water, oil, and raw materials, by promoting efficient technologies and manufacturing process improvements, water conservation programmes, and efficient use of raw materials.
- Adopt energy efficient and cleaner technologies based on techno-economic viability, appropriate to the region in which we operate, and in line with our growth and diversification plans.
- Promote the principles of waste prevention, reduction, reuse, recycling and recovery to minimize waste generation and strengthen the practices for management of wastes.
- Work in partnership with regulatory authorities, relevant suppliers, contractors, distributors and logistics partners and all other stakeholders, as applicable, to understand and initiate improvement actions.
- Engage with internal and external stakeholders including key business partners such as joint venture partners, licensees and outsourcing partners and wider communities, to broaden our understanding of environmental priorities and initiate actions on key environmental challenges.
- Adapt environmental performance over life cycle as an important input to the decision-making processes in the organization.
- Raise environmental awareness at all levels of our operations, through training and effective communication, participation and consultation.
- Communicate this Policy within the Organization. Develop and follow appropriate communication system to inform other stakeholders, as applicable, about our environmental commitment and performance.
- Conduct environmental, health and safety due diligence before undergoing any mergers and acquisitions.

This policy shall be made available to all employees, suppliers, customers, community and other stakeholders, as appropriate. The implementation of this policy is the responsibility of respective heads of units with the monitoring and tracking done by the Apex Sustainability Committee under the guidance of the Managing Director.

Satish Pai

MD, Hindalco Industries Limited

Date : 9<sup>th</sup> August, 2022