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/985

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 Pakhar (109.507 ha) Bauxite Mining project of M/s Minerals & Minerals Limited located in the District of Lohardaga, Jharkhand for the period April'24 to September'24.

Ref: Environmental Clearance letter no J-11015/518/2008-IA II (M) dated 21st Oct 2010.

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for Pakhar (109.507 ha) Bauxite Mining project of M/s Minerals & Minerals Limited, located in Lohardaga, Jharkhand for the period April'24 to September'24.

The lease detail is as below.

| Lease area (ha) | Production Capacity (MT) | Lease Period |
|-----------------|--------------------------|--------------------------|
| 109.507 | 280000 | 26.07.2008 to 25.07.2058 |

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, mef@ori.nic.in, mef@nic.in, mef.or@nic.in, mscb.cpcb@nic.in, zokolkatta.cpcb@nic.in, ranchijspcb@gmail.com, roranchi47@gmail.com

Name of the Project : Pakhar Bauxite Mine (109.507 ha)

M/s Minerals & Minerals Ltd

Environment Clearance No. & date : J-11015/518/2008-IA.II(M), dated 21.10.2010

Period of compliance Report : From 1st April'24 to 30th Sept'24

Specific Conditions

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: - Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid up to 31.03.2025. Productions of bauxite are within limits specified in consent to operate.

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

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

Condition iii: - The mining operation shall be confined to the hill tops only and restricted to above ground water table and it should not intersect the ground water table. In case of working below ground water table, prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained, for which a detailed hydro – geological study shall be carried out.

Reply: - Since shallow depth mining is being carried out, hence there is no intersection with the groundwater table. In future also, working zones will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintain in 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**.

As the water table is not intersected during mining operations, a detailed hydro-geological study is not applicable for this mine.

Condition iv: - The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken for protection of seasonal channels, if any emanating from the mine lease, during the course of mining operation.

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

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

Reply: - Topsoil is being stacked temporally properly with proper slope as and when required. Sequential backfilling and reclamation of mined out area are being exercised for which topsoil is being spread on backfilled area for reclamation of area. 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 vi: - The over burden (OB) generated shall be temporarily stacked in the earmarked area for a period of one year and thereafter concurrently backfilled. There shall be no external overburden dump. The backfilled area shall be progressively afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneshwar on six monthly basis.

Reply: - Overburden and waste rock are being used for concurrent backfilling, and topsoil is being spread on the backfilled area for reclamation. Currently, there is no OB dump present in the mine lease area. Monitoring and management of rehabilitated areas is continuing until vegetation becomes self-sustaining through supervision. Data pertaining to backfilling is enclosed as **Annexure 4.** Six monthly compliance report is being submitted to MoEF&CC regularly.

Condition vii: - The void left unfilled in an area of 0.41 ha shall be converted into water body. The higher benches of excavated void/ mining pits shall be terraced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.

Reply: - Implementation of condition is in progress. Mining is being carried out in a scientific manner. Rainwater harvesting pond of 1.26 ha has been constructed and proper fencing provided. Necessary measures have been implemented for easy accessibility by local people to use this harvested water.



Rainwater Harvesting Pond

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





Garland drains

Condition ix: - Dimension of the retaining wall at the toe of the OB benches within the mine to check run-off and siltation should be based on the rainfall data.

Reply: - There is no temporary dump 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 x: - Plantation shall be raised in an area of 6.3 ha including a 7.5 m. wide statutory barrier all around the mining lease, reclaimed and rehabilitated areas, around water body, etc. by planting the native species in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2000 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.

Reply: - Progressive plantation is being carried out in consultation with local forest department. Cumulative 14.98 ha has been covered with plantation till date. Green belt development program is in progress with progress of mining activities. Total 4800 Nos. of sapling planted for the period from April'24 to September'24. In addition to these agricultural activities is going on reclaimed land as per consent from landowners.



Plantation at mines

Condition xi: - Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as around crushing and screening plant, 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:- 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 below.



Water sprinkling through tanker

Condition xii: - Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.

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

Condition xiii: - 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 Specific condition vii.

Condition xiv: - Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year – premonsoon (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 Bhubaneshwar, The Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water 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 xv: - Appropriate mitigative measures shall be taken to prevent pollution of the Kisko Nadi, the Sankh Nadi, the Surang River, the Chaupat Nadi 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.

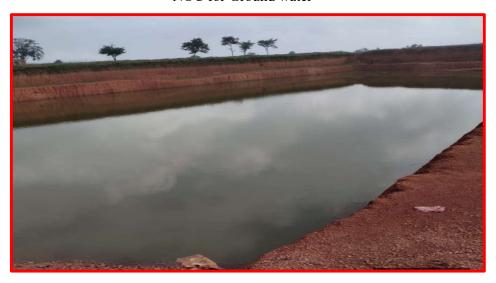
Condition xvi: - The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water (from natural spring) required for the project.

Reply: - We are not using any water from natural streams/ ground water for mining operation. Rainwater harvesting ponds with proper fencing have been already constructed in the mine premises. Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation.

However, we have already obtained NOC for extraction of ground water from CGWA/CGWB for drinking purpose only. The copy of same NOC and photograph of rainwater harvesting pond are attached below.



NOC for Ground water



Rainwater Harvesting Pond

Condition xvii: - 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 xviii: - 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 within the mine lease up to the stock yard. The mineral transportation within the mine lease shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded.

Reply: - To keep vehicular emissions under control, vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission. All vehicles are covered with tarpaulins, and non-overloading guidelines are being followed during transportation of mineral.



Tarpaulin covered truck

Condition xix: - Blasting operation should be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibration 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. We have control blasting permission. Controlled blasting method is in practice. Ground vibration study has been conducted periodically. Efforts and mitigative measures are being taken to mitigate the impact of the blast.

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

Reply: - Wet drilling is in practice.



Wet drilling

Condition xxi: - 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.

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

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 Pakhar group of mines to treat 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**.

Condition xxiii: - 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 xxiv: - 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 xxv: - The land Outsees and land losers/ affected people shall be compensated/ rehabilitation as per the National Policy of Resettlement and Rehabilitation of project Affected Families (NPRR)

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

Condition xxvi: - Door to door sample survey should be undertaken within the impact zone to assess the family-based need of the tribals and it should be appropriately addressed in the CSR activities to be undertaken in the area. An action plan in this regard should be prepared and submitted.

Reply: - As a company, we are deeply committed to enhancing the quality of life for people living in the impact zone area. Therefore, the company's CSR team conducts regular assessments of the family-based needs of the tribals and ensures that their problems are properly addressed.

Condition xxvii: - 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, creche etc. The housing may be in the form of the temporary structures to be removed after the completion of the project.

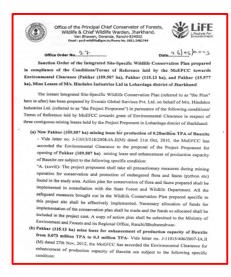
Reply: - We believe that the wellbeing of all the labours working within the site should be taken care of on a priority basis, so that they can work in a stress-free environment. Therefore, all the necessary infrastructure and basic facilities are being taken care of. Safe drinking water and medical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

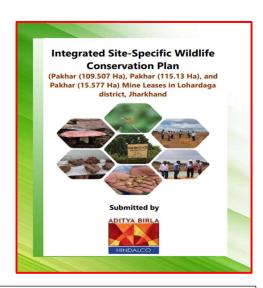
Condition xxviii: - The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora and fauna (python etc.) found in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measured brought out in the Wildlife conservation plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.

Reply: - 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.

We have also prepared Integrated Site-specific Wildlife Conservation in consultation with State Forest Department and obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand via Office Order No.27 dated 26.05.2023 for conservation and protection of flora and fauna in the core and buffer zone for Pakhar Group of Mines.





Integrated Site-specific Wildlife Conservation for Pakhar Group of Mines

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

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.

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

Reply: - Mining Plan along with progressive mine closure plan has been approved by Indian Bureau of Mines. Final Mine Closure Plan will be 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 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 and in scientific manner. Data pertaining to excavation, quantum of mineral bauxite etc. are mentioned in report attached as **Annexure 4.**

Condition iii: - At least four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 μm (i.e. PM_{10}) & NOx monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

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

Condition iv: - Data on ambient air quality RSPM [(Particulate matter with size less than 10 μm i.e. PM_{10} & NO_X] should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.

Reply: - Being adhered to. Monitoring Reports for the reporting period are attached as **Annexure-2**. Now, the Regional office of MoEF&CC is in Ranchi.

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

Reply: - Mobile water tanker with sprinkling facility has been provided along haul roads, at loading and unloading areas, and at transfer points to control dust emissions.

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

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

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 Pakhar group of mines to treat 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**.

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

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

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

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

Reply: This is an operating mine and hence the provision related to financial closure is not applicable. Now, the Regional office of MoEF&CC is in Ranchi.

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

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

Condition xiii: - The project proponent shall submit six monthly report on the status of the compliance of the stipulated environmental Clearance conditions including results of monitoring data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Officer, Bhubaneshwar, the respective Zonal office of Central Pollution Control Board 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, Bhubaneshwar, the respective Zonal Office of Central Pollution Control Board and 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 MoEFCC, 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 xiv: - A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

Reply: - Complied. A copy of clearance letter has already been submitted.

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

Reply: - 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 31st March in Form – V as is mandated to be submitted by the project proponent to the concerned Stated 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 the compliance of environmental clearance conditions and shall also be sent to the 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 EC conditions is uploaded on the website of the company on regular basis.

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

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.

| | Annexure 1 | | | | | | |
|--------------------------------|------------|-------|--|--|--|--|--|
| Piezometer Reading -Pakhar 109 | | | | | | | |
| S No Month Depth (meter) | | | | | | | |
| 1 | Apr-24 | 38.99 | | | | | |
| 2 | May-24 | 38.87 | | | | | |
| 3 | Jun-24 | 39.15 | | | | | |
| 4 | Jul-24 | 39.24 | | | | | |
| 5 | Aug-24 | 38.8 | | | | | |
| 6 | Sep-24 | 38.2 | | | | | |

ENVIROCHECK

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

Pakhar (109.507) Bauxite Mine-Environmental Monitoring Report

April 2024





| Test Report No. | : ENVJK/1211/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 DET | CUSTOMER DETAILS | | |
|--------------------|-------------------------------|----------------------|----------------------------------|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. | : ENVJK/2024/AA/1736 |
| | | Location | : Near Mine Quarry No-K7 |
| | Later and the second | | Pakhar (109.507 ha) Bauxite Mine |
| Address | Lohardaga, Jharkhand-835302 | Sampling Date | : 14.04.2024 to 15.04.2024 |
| | | Sample Received Date | : 22,04.2024 |
| | | Type of Sample | : Ambient Air |
| Mines Status | Operational | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sampling Done By | : ELES Pvt. Ltd. |
| Period of Analysis | : 22,04.2024 to 28.04.2024 | Sample Condition | : Sealed & Preserved |

| MI | ETEOROLOGICAL INFOR | MATION | | | |
|----|--------------------------|--------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 31 | 2 | Barometric Pressure (mmHg) | : 738 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

| Discipline: | Chemical | Group: Atm | ospheric Poll | ution |
|--------------------------------------|-------------------|---|---------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part 23): 2006 | 65 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | USEPA 1997a,40 CFR Part 50, Appendix L: 2006 | 32 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part 2): 2001 | 10.6 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part 6): 2006 | 23.3 | 80 (24hrs) |
| Ozone (O ₂) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (Shrs) |
| Ammonia (NH ₅) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ¹ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ² | IS 5182 (Part- 22): 2019 | 0.011 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m1 | USEPA Method – IO-3,5 (ICP-MS Method) | <2.0 | 06 (Amual) |
| Benzene (CoHo) | μg/m³ | USEPA Method – TO-3 (GC-MS- Method) | <1.0 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | USEPA Method – TO-3A (GC-MS Method) | <0.5 | 01(Annual) |

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

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(Bapan Das, Dy. Technical Manager)

Page 1 of 1





| Test Report No. | : ENVJK/1212/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. Location | : ENVJK/2024/AA/1737 : Near Mine Quarry No-K9 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 14.04.2024 to 15.04.2024 : 22.04.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 22.04.2024 to 28.04.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| M | ETEOROLOGICAL INFO | RMATION | | | |
|---|--------------------------|---------|---|----------------------------|---------|
| 1 | Average Temperature ("C) | :31 | 2 | Barometric Pressure (mmHg) | : 738 |
| 3 | Relative Humidity (%) | : 59 | 4 | Weather Condition | : Clear |

| Disciplines | Chemical | Group: Atm | ospheric Poll | ution |
|--|-------------------|---|---------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part 23): 2006 | 77 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m³ | USEPA 1997a,40 CFR Part 50, Appendix L: 2006 | 38 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part 2): 2001 | 10,2 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part 6): 2006 | 22.9 | 80 (24hrs) |
| Ozone (O ₃) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m [×] | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | 1S 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22): 2019 | 0.011 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m² | USEPA Method – IO-3.5 (ICP-MS Method) | <2.0 | 06 (Annual) |
| Benzene (C ₀ H ₀) | μg/m³ | USEPA Method – TO-3 (GC-MS Method) | <2,5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | USEPA Method - TO-3A (GC-MS Method) | <0.5 | 01(Annual) |

Reviewed by :

(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory :

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(Bapan Das, Dy. Technical Manager)

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| Test Report No. | : ENVJK/1213/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. Location | : ENVJK/2024/AA/1738 : Near Mine Quarry No-K5 Pakhar (109,507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : (4.04.2024 to 15.04.2024 : 22.04.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMP1/02 | |
| Period of Analysis | ; 22.04.2024 to 28.04,2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFORMATION | | | |
|----|------------------------------|---|--------------------------|-----------|
| 1 | Average Temperature (°C) (3) | 2 | Barometric Pressure (mml | Hg) : 738 |
| 3 | Relative Humidity (%) : 59 | 4 | Weather Condition | : Clear |

| Discipline: | Chemical | Group: Atm | ospheric Poll | ution |
|--|--------------------|---|---------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m | IS 5182 (Part 23): 2006 | 67 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m³ | USEPA 1997a,40 CFR Part 50, Appendix L: 2006 | 35 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m ³ | IS 5182 (Part 2): 2001 | 7.6 | 80 (24brs) |
| Nitrogen Di-Oxide (NO ₁) | pg/m³ | IS 5182 (Part 6): 2006 | 18.9 | K0 (24hrs) |
| Ozone (O ₂) | µg/m ³ | 15 5 (82 (Part- 9); 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m. ¹ | 15 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m ⁵ | IS 5182 (Part- 22): 2019 | 0.007 | 1 (24hrs) |
| Nickel (Ni) | ng/m1 | 15 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | USEPA Method – IO-3.5 (ICP-MS- Method) | <2.0 | 06 (Annual) |
| Benzene (C ₅ H ₆) | μg/m³ | USEPA Method – TO-3 (GC-MS Method) | <1.0 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | USEPA Method – TO-3A (GC-MS- Method) | <0.5 | 01(Annual) |

Reviewed by:

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(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

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(Bapan Das, Dy. Technical Manager)

Page 1 of 1

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| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|-----------------|-----------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | ± 30.03.2024 |
| Test Report No. | : ENVJK/1214/APR/TR(W)24-25 | Report Release Date | ± 28.04.2024 |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---|--|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ENVJK /2024/AA/1739 : Pakhar Loading Area Pakhar (109.507 ha) Bauxite Mine | |
| Address | Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample | 22,04,2024 to 15,04,2024 22,04,2024 Ambient Air | |
| Mines Status | : Operational | Sampling Procedure | ; ELES/DOC/SMPL/02 | |
| Period of Analysis | : 22.04.2024 to 28.04.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFO | RMATION | | | | |
|----|--------------------------|---------|----|--------------------------|-----------|--|
| 1 | Average Temperature (°C) | :34 | 2 | Barometric Pressure (mml | lg) : 738 | |
| 3 | Relative Humidity (%) | : 60 | 4. | Weather Condition | : Clear | |

| Discipline: | Chemical | Group: Atm | ospheric Poll | ution |
|--|-------------------|---|---------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m ³ | 1S 5182 (Part 23): 2006 | 70 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | USEPA 1997a,40 CFR Part 50, Appendix L: 2006 | 43 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part 2): 2001 | 12.7 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | 1S 5182 (Part 6): 2006 | 21,2 | 80 (24hrs) |
| Ozone (O.) | μμ/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NHi) | μg/m ³ | 1S 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ² | IS 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22): 2019 | 0.013 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | USEPA Method – IO-3.5 (ICP-MS Method) | <2.0 | 06 (Annual) |
| Benzene (C _a H _a) | μg/m³ | USEPA Method – TO-3 (GC-MS Method) | <1.0 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m² | USEPA Method – TO-3A (GC-MS Method) | <0.5 | 01(Annual) |

Reviewed by :

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(Saswata Burman Roy, Dy. Quality Manager)

Authorised Signatory:

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(Bapan Das, Dy. Technical Manager)

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TEST REPORT

| Tant Report No. | : ENVJK/1169/AFR/TR(W)24-25 | Report Release Date | : 23.04.2024 | |
|-----------------|-----------------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Dyder Date | : 28.03.2024 | |

| CUSTOMER DET | VILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|--|---|--|
| Customer Name | Hindulco Industries Limited | Sample Ref. No. Location | : ENVJK/2024/AA/1694 : New Bunglapert Village PakharBauxite Mine | |
| Address | : Lohardaga, Jharkhand-235302 | Sample Received Date Type of Sample | : 12.84.2024 to 13.04.2024 : 15.04.2024 - Ambient Air : ELES/DOC/SMPL/02 | |
| Mines Stares | ; Operational | Sampling Procedure Sampling Done By | : ELES Pvt. Ltd. | |
| Period of Analysis | 15.04.2024 to 23.04.2024 | Sample Condition | Sealed & Preserved | |

| ME | ETEOROLOGICAL INFOR | MATION | | | |
|----|--------------------------|--------|-----|----------------------------|---------|
| 1 | Average Temperature (*C) | : 32 | 1.2 | Barometric Pressure (mmHg) | 1734 |
| 3 | Relative Humidity (%) | =61 | 4 | Weather Condition | ; Clear |

| | Discipili | ne; ChemicalGroup: Atmospheric Pollu | itiou | |
|--|-------------------|---|---------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | ug/m ³ | IS 5182 (Part 23): 2006 | 56 | 100 (24hrs). |
| Particulate Matter (PM2.5) | μg/m³ | USEPA 1997a,40 CFR Part 50, Appendix L: 2006 | 32 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | 1S 5182 (Part 2): 2001 | 7.0 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO2) | µg/m³ | IS 5182 (Part 6): 2006 | 19.4 | 80 (24hrs) |
| Ozone (O _y) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₂) | HR/m3 | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | (S 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m ³ | IS 5182 (Part- 22): 2019 | < 0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | USEPA Method - IO-3.5 (ICP-MS Method) | <2.0 | 06 (Annual) |
| Benzene (C ₆ H ₆) | µg/m | USEPA Method – TO-3 (GC-MS Method) | <2.5 | 05(Annual) |
| Henzo-(a)-Pyrene | ng/m1 | USEPA Method – TO-JA (GC-MS Method) | < 0.5 | O)(Annual) |

Reviewed by a

(Saswetz Burman Roy, Dy. Quality Menager)

Authorised Signatory :

(Hapan Das, Dy Tuchmical Manager)

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| Test Report No. | = ENVJK/1170/APR/TR(W)24-25 | Report Release Date | : 23.04.2024 |
|-----------------|-----------------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|------------------------------|--|---|
| Customer Name | :Hindalco Industries Limited | Sample Ref. No. Location | : ENVJK/2024/AA/1695 : Yetei Shed (Nest K-10) Pakhar Bauxine Mine |
| Address | : Lohardaga, Hurkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : (2,04.2024 to 13.04.2024 : 15.04.2024 Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | = ELES Pvr. Ltd. |
| Period of Analysis | : 15.04.2024 to 23.03;2024 | Sample Condition | Scaled AlPreserved |

| MI | TEOROLOGICAL INFORMATION | | | |
|----|------------------------------|---|----------------------------|---------|
| 1 | Average Temperature (°C') 32 | 2 | Barometric Pressure (mmHg) | : 734 |
| 3 | Relative Humidity (%) : 6) | 4 | Weather Condition | : Clear |

| | Disciplin | ne: ChemicalGroup: Atmospheric Pollu | tion | |
|--------------------------------------|-------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part 23): 2006 | 60 | 100 (24hrs): |
| Particulate Matter (PM2.5) | μg/m³ | USEPA 1997a,40 CFR Part 50, Appendix L: 2006 | 35 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/im³ | IS 5182 (Part 7): 2001 | 8.7 | 80 (24ius) |
| Nitrogen Di-Oxide (NO ₁) | µg/m³ | 1S 5182 (Part 6); 2006 | 22.1 | 80 (24las) |
| Ozone (O ₂) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | ing/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | 0,1> | 2 (8hrs) |
| Lead (Pb) | µg/m² | 15 5182 (Part- 22): 2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | USEPA Method – IO-3.5 (ICP-MS Method) | <2.0 | 06 (Annual) |
| Benzenė (Coltic) | μg/m³ | USEPA Method - TO-3 (GC-MS Method) | <2.5 | 05(Annual) |
| Benzn-(a)-Pyrene | ng/m ^b | USEPA Method – TO-3A (GC-MS Method) | <0.5 | 01(Annual) |

Reviewed by :

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Authorised Signatory:

(Saswata Burman Roy, Dy. Quality Manager)

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(Bapan Das, Dy. Technical Manager)

Page I of I

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| Test Report No. | : ENVJK/1172/APR/TR(W)24-25 | Report Release Date | 123,04,2024 | |
|-----------------|-----------------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28,03,2024 | |

| CUSTOMER DETA | AILS | SAMPLE DETAILS | | |
|--------------------|---------------------------------|---|---|--|
| Customer Name | :Hindelco industries Limited | Sample Ref. No. | : ENVIK/2024/AA/1597 : Near UrksrmitRajkiyaPratimita VidyalayaDomrapan Village PakharBauxite Mine | |
| Address | : Lotterfage, Jharklyand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 12,04,2024 to 13.04,2024 : 15,04,2024 : Ambient Air : ELES/DOC/SMPU/02 | |
| Mines Status | : Operational | Sampling Done By | : ELES PVI, Ltd. | |
| Period of Analysis | : 15.04.2024 to 23.04.2024 | Sample Condition | Sented & Preserved | |

| ME | TEOROLOGICAL INFORMATION | | | |
|----|-----------------------------|----|-------------------------|-----------|
| 1 | Average Temperature (°C) 32 | 2: | Barometric Pressure (mm | Hg) : 734 |
| 3 | Relative Humidity (%) : 61 | 4 | Weather Coudition | : Clear |

| 2 Remarks transfers (54) | - 91 | T Treating Country | | 1. Catherin |
|--|----------------------------|--|--------|------------------|
| | Discip | line: ChemicalGroup: Atmospheric Pol | lution | |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µш/т ³ | IS 5182 (Part 23): 2006 | 59 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μ <u>γ</u> /m ³ | USEPA 1997a, 40 CFR Part 50, Appendix L: 2006 | 33 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₇) | µg/m³ | 1S 5182 (Part 2): 2001 | 7:1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₁) | μg/m³ | IS 5182 (Part 6); 2006 | 22.7 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20. | 100 (8hrs) |
| Ammonia (NH ₃) | jag/in | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m² | IS 5182 (Parts 10): 2019 (NDIR Method) | <1,0 | 2 (8hrs) |
| Lead (Pb) | µg/m1 | IS 5182 (Part- 22): 2019 | 0.005 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | 1S 5182 (Part- 26); 2020 | <5.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | USEPA Method – IO-3.5 (ICP-MS Method) | <2.0 | 06 (Annual) |
| Benzene (C ₀ H ₀) | μg/m³ | USEPA Method – TO-3 (GC-MS Method) | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m | USEPA Method – TO-3A (GC-MS Method) | <0.5 | D1(Annual) |
| | | | | |

Reviewed by :

(Saswata Burman Roy, Dy. Quality (Vanager) &

Authorised Signatory:

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(Bapan Das, Dy. Technical Manager)

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| Test Report No. | : ENVJK/1171/APR/TR(W)24-25 | Report Release Date | : 23.04.2024 |
|--------------------|------------------------------|---|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28,03.2024 |
| CUSTOMER DETA | AILS | SAMPLE DETAILS | |
| Customer Name | :Hindalco Industries Limited | Sample Ref. No. Location | ENVJIG/2024/AA/1695 : Near UlkarmitRajkiyaPrathmila VinyalayaBunglapan Village PakhurBungla Mine |
| Address | Lohardaga, Jharicaand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 12.04.2024 to 13.04.2024 : 15:04.2024 : Anthiem Air : BLES/DOC/SMPL/02 |
| Mines Stava | : Operational | Sampling Done By | : ELES Pvi, Lid. |
| Period of Analysis | : 15,04,2024 to 23,04,2024 | Sample Condition | : Sealed & Preserved |

| Ü | Average Temperature (°C) | : 32 | 2 | Barometric Pressure (mmH | (g) = 734 |
|---|--------------------------|------|----|--------------------------|-----------|
| 3 | Relative Humidity (%) | 1.61 | 4. | Weather Condition | : Clear |

| | Discip | line: ChemicalGroup: Atmospheric Pol | lution | |
|-------------------------------------|-------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m³ | 1S 5182 (Part 23): 2006 | 59 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m ² | USEPA 1997a,40 CFR Part 50, Appendix L: 2006 | 34 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | 1S 5182 (Part 2): 2001 | H.2 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO2) | μg/m³ | (S 5182 (Part 6): 2006 | 24.5 | 80 (24hrs) |
| Ozona (O ₃) | µg/m³ | (S 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ¹ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8lws) |
| Lend (Pb) | µg/m ³ | 18 5182 (Part- 22): 2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m ³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ⁷ | USEPA Method - 10-3.5 (ICP-MS Method) | <2.0 | 06 (Annual) |
| Benzene (Colla) | μg/m³ | USEPA Method – TO-3 (GC-MS Method) | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m² | USEPA Method - TO-3A (GC-MS Method) | <0.5 | 01(Annual) |

Randewed by :

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(Saswata Burman Roly, Dy. Quality Manager)

Authorised Signatory:

(Bapan Das, Dy, Technical Manager)

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CONTENT

| | Minerals & Minerals: Pukhar (109,507) Environmental Monitoring Report | May2024 |
|---|---|---------|
| | Pakhar (109.507) | |
| | AMBIENT AIR QUALITY- CORE ZONE | |
| 1 | Near Mine Quarry No-K7 | |
| 2 | Near Mine Quarry No-K9 | |
| 3 | Near Mine Quarry No-K5 | |
| 4 | Pakhar Loading Area | |
| | AMBIENT AIR QUALITY- BUFFER ZONE | |
| 1 | Near Bunglapart Village | |
| 2 | Yatri Shed (Near K-10) | |
| 3 | Near UtkarmitRajkiyaPrathmikVidyalayaBunglapart Village | |
| 4 | Near UtkarmitRajkiyaPrathmikVidyalayaDumrapart Village | |
| | Drinking Water | |



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

ENGINEERING SERVICES PVT. LTD

Email: info@elesul.co.in , eles runchi@gmail.rum Phone no.: 0651-2290103

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/2692 | Report Release Date | ; 20.05.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400000661F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | , Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/2998 : Near Mine Quarry No-K7 Pakhar (109,507 ha) Bauxite Mine | |
| Address | ; Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 11.05,2024 to 12.05,2024 : 15.05,2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 15.05.2024 to 20.05.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|----------------------------|---------|
| 1 | Average Temperature (°C) : 34 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 60 | 4 | Weather Condition | : Clear |

| Discipline: 0 | hemical | Group: Atm | Group: Atmospheric Pollution | | | |
|--------------------------------------|-------------------|---|------------------------------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | µg/m³ | 1S 5182 (Part- 23): 2022 | 68 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 36 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 9.8 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 24.1 | 80 (24hrs) | | |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₁) | μg/m³ | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | µg/m² | 15 5182 (Part- 22): 2019 | 0.014 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m [†] | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m² | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

Page 1 of 2

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

ERING SERVICES PVT. LTD

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/2692 | Report Release Date | : 20.05.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400000661F | | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | | |
|--|-------|------------------------------|--------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | | |
| Велго-(а)-Рутепе | ng/m³ | 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 Manage

Page 2 of 2

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

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



w.elespl.co.in Tc.139

TEST REPORT

Test Report No. : ELES/RNC/2024/2693 Report Release Date : 20.05.2024

Work Order No. : RP/MJB/MM/24/0088/00 Work Order Date : 30.03.2024

ULR No. : TC135872400000662F

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/2999 : Near Mine Quarry No-K9 Pakhar (109,507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 11.05.2024 to 12.05.2024 : 15.05.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | ; 15.05.2024 to 20.05.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFO | RMATION | | | |
|----|--------------------------|---------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 34 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 60 | | Weather Condition | : Clear |

| Discipline: | Chemical | Group: Atmospheric Pollution | | | | |
|--------------------------------------|-------------------|---|--------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 73 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | μg/m ³ | IS 5182 (Part- 24): 2019 | 35 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part-II/Sec-1): 2023 | 10.7 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | μg/m ³ | IS 5182 (Part- 6); 2022 | 23.1 | 80 (24hrs) | | |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₃) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22): 2019 | 0,014 | 1 (24hrs) | | |
| Nickel (NI) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (Au) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

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TEST REPORT

Test Report No. : ELES/RNC/2024/2693 Report Release Date : 20.05.2024

Work Order No. : RP/MJB/MM/24/0088/00 Work Order Date : 30.03.2024

ULR No. : TC135872400000662F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | µg/m³ | ELES/GC/SOP/06; 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05; 2023 | <0.5 | 01(Annual) | |

AKASH KUMAR Quality Manager ELES PVT. LTD

ASH KUMAK ****End of Report****

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

ELES Pvt. Ltd. Technical Marray

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TEST REPORT

| Test Report No. | : ELES/RNC/2024/2694 | Report Release Date | : 20.05.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400000663F | | 100 100 100 | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3000 : Near Mine Quarry No-K5 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 11.05.2024 to 12.05.2024 : 15.05.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 15.05.2024 to 20.05.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFORMATI | ON | | | |
|----|-------------------------------|----|-------------------------|-----------|--|
| 1 | Average Temperature (°C) : 34 | 2 | Barometric Pressure (mm | Hg) = 742 | |
| 3 | Relative Humidity (%) : 60 | 14 | Weather Condition | : Clear | |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | | |
|--------------------------------------|-------------------|---|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | μg/m³ | 1S 5182 (Part- 23): 2022 | 71 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | μg/m³ | 1S 5182 (Pari- 24): 2019 | 40 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 8.3 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6): 2022 | 20.7 | 80 (24hrs) | |
| Ozone (O ₃) | μg/m³ | 1S 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | |
| Ammonia (NH ₃) | μg/m³ | 15 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | |
| Lead (Pb) | µg/m² | 1S 5182 (Part- 22): 2019 | 0.010 | 1 (24hrs) | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6,0 | 20 (Annual) | |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |

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

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TEST REPORT

Test Report No. : ELES/RNC/2024/2694 Report Release Date : 20.05.2024

Work Order No. : RP/MJB/MM/24/0088/00 Work Order Date : 30.03.2024

ULR No. : TC135872400000663F

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--|-------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C ₆ H ₆) | μg/m² | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) |

Reviewed by AKASH KUMAR Quality Manager ELES PVT, LTD.

****End of Report****

Authorised Signatory

Ph. Deependra Kumar Sirici.
Ph. D Environmental Engg.
ELES Pvt. Ltd. Technical Manage

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ENGINEERING SERVICES PVT. LTD.

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YCH2587

TEST REPORT

| Test Report No. | : ELES/RNC/2024/2695 | Report Release Date | : 20.05.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | ; 30.03.2024 |
| ULR No. | : TC135872400000664F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|--|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3001 : Pakhar Loading Area Pakhar (109.507 ha) Bauxife Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 11.05,2024 to 12.05.2024 : 15.05,2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 15.05.2024 to 20.05.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| M | ETEOROLOGICAL INFORMA | ATION | | |
|---|-----------------------------|-------|----------------------------|---------|
| 1 | Average Temperature (°C) :3 | 4 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 6 | 50 | Weather Condition | : Clear |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--------------------------------------|-------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part-23): 2022 | 74 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 45 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 11.6 | 80 (24lus) |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6): 2022 | 22,9 | 80 (24hrs) |
| Ozone (O ₃) | μg/m ¹ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m ³ | 1S 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8brs) |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | 0.012 | 1 (24hrs) |
| Nickel (Ni) | ng/m¹ | 1S 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ⁷ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-B34003 (JHARKHAND) GST NO:-20AAECE9713D1Z4

ENGINEERING SERVICES PVT. LTD.

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

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TC-13847

TEST REPORT

| Test Report No. | : ELES/RNC/2024/2695 | Report Release Date | : 20.05.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03,2024 | |
| ULR No. | : TC135872400000664F | | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--|-------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) |

AKASH KUMAR Quality Manager FLES PVT. LTD.

****End of Report***

Authorised Signatory

Dr. Deependra Kumar Sinha

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Management

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECES7130124



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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/2672 | Report Release Date : 18.05.2024 |
|-----------------|----------------------|----------------------------------|
| Work Order No. | : 13612312113 | Work Order Date : 28.03.2024 |
| ULR No. | . TC135872400000641F | |

| CUSTOMER DET | CUSTOMER DETAILS | | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---|---|--|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | ELES/RNC/2024/AA/2963 Near Bunglapart Village Pakhar Bauxite Mine | | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 10.05.2024 to 11.05.2024 : 13.05.2024 : Ambient Air : ELES/DOC/SMPL/02 | | |
| Mines Status | : Operational | Sampling Done By | : ELES Pvt. Ltd. | | |
| Period of Analysis | : 13,05.2024 to 18.05.2024 | Sample Condition | : Sealed & Preserved | | |

| MI | ETEOROLOGICAL INFORMATION | | | |
|----|-------------------------------|---|---------------------------|----------|
| 1 | Average Temperature (°C) : 33 | 2 | Barometric Pressure (mmil | g) = 742 |
| 3 | Relative Humidity (%) 59 | 4 | Weather Condition | : Clear |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--------------------------------------|-------------------|--|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | µg/m ² | IS 5182 (Part+23): 2022 | 6.3 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | µg/m ¹ | IS 5182 (Part-24): 2019 | 36 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | µg/m | 1S 5182 (Part- II/Sex- 1): 2023 | 9.1 | 80 (24hra) | |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part- 6): 2022 | 23.3 | 80 (24hrs). | |
| Ozone (O ₁) | μg/m³ | TS 5182 (Part- 9): 2019 | <20.0 | 100 (Shru) | |
| Ammonia (NH ₃) | µg/m² | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m² | IS 5182 (Part-10); 2019 (NDIR Method) | <1,0 | 2 (8hes) | |
| Load (Pb) | pg/m² | IS 5182 (Part) 22): 2019 | <0.002 | 1 (24hrs) | |
| Nickel (Ni) | ng/m1 | 18 5182 (Pars- 26); 2020 | <6.0 | 20 (Annual) | |
| Amenic (As) | tig/m³ | ELES/AfR/SOP/01; 2021 | <2.0 | bō (Ammil) | |

Page 1 of 2

The Dadminist seried as Test Report, a stated by the Laporimery uniter General Terms and Combiners, only an Congress letter head in presengation of the series and the Test Report redicts the desired was by the Laboratory only. The information ended on the Test Report redicts the desired was by the Laboratory only. The information ended on the Test Report redicts the desired on the report, and the information which is provided by the class. The Report formed by report and that report is not along on the report and the report is not along on the report and the report is not along on the report of the Laboratory. The Report is full to it per behinded, adverted, used for an long agency under price permanent which have been accounted to the published, adverted, used for an longest agency under price permanent with the Laboratory. Attention to draw to be becauted on a tension, a unspectic and interest of the Laboratory. Attention to draw to be becauted on the first engagement of the Test Report is an invalid and offenders are to be reasonable to the follow and the East the complete was invalid to the first engagement of the Test Report in an invalid was offenders and to be reasonable. Any type of the complete was invalid to draw the support whall be draw within 15 days in the East velocities used to be reasonable. But the test support which is drawn to be accepted. The source than a following most contact to the following form the first permanent in the following the following forms of the source than a following form of the following forms of



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Website: www.elespl.co.in

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



TEST REPORT

| Test Report No. | ELES/RNC/2024/2672 | Report Release Date | 18.05.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03,2024 |
| ULR No. | : TC135872400000641F | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|----------------------|-------------------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C.H.) | pg/m ³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m² | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annusi) |

Reviewed by AKASH KUMAR Quality Managur FLES PVT LTD.

****End of Report****

Authorised Signatory Dr. Deependre Kuntay Sinha Ph. D Environmental F 119 ELES Pyt. Ltd. Technical Menogra-

Page 2-of 2

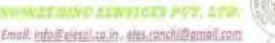
The Discomen solid as Test Report, is issued by the Laboratory under General Territ and Conditions, only on Company letter fined in pre-approved format. The resolushown to the Test hapon rates or tribute only in the indvinualysis done by the Laboratory andy. The internation states on the Test hapon reflects the feedings close by the Laboratory at the time of involvement only and setting the family of classes a contractions. The Laboratory is responsible for all the information or data provided on the report, reages the information which is provided by the client. The Report cannot be reproduced exergs to full and any part of the report is not been not of content, without print written approval of the Laboratory. The Report to full of in goal shall out be published, sulvertise, used for any legal actions unless print particulation has been secured from the Management of the Laboratory. Attention is deason to the limitation of highliny, compensation and jurisdiction issues. Any unsufficient distribution of the commit of organization of the Test Report is unlawful and offlinders may be proseculated to the fallest extent of the loss. All the samples are retained by Military from the Date of relation/mine of the Test Report. The samples from Regulatory budget size to be retained an appointed. Any type of Cityer varions or Complaints regarding the Reports shall he does within 1 blays from the Date of Ten Superi relevant/most. After the time period travel before, no complaints will be recurred. The smile Time schedule provides of the Report is in 23 Department of Abbreviation used, N/A (No. Applicable), HDC (Report Department and Line), LDC (Report Department and Long).



CNUTRONMENTAL LABORAT

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARKHAND) DST NO-204 AFCE 971 VD 174





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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/2675 | Report Release Date | : 18.05.2024 |
|-----------------|-----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03;2024 |
| ULR No. | ± TC1358724000006421/ | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---|---|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | ELES/RNC/2024/AA/2964 Vatri Shed (Near K-10) Pakhar Bauxite Mine | |
| Address | : Lohardaga, Tharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 10,05,2024 to 11,05,2024 : 13,05,2024 : Ambient Air : ELES/DOC/SMPL/02 | |
| Mines Status | : Operational | Sampling Done By | : ELES PVL Ltd. | |
| Period of Analysis | : 13.05.2024 to 18.05.2024 | Sample Condition | : Sealed & Preserved | |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|--------------------------|----------|
| 1 | Average Temperature (°C) = 33 | 2 | Barometric Pressure (mmH | g) = 742 |
| 3 | Relative Humidity (%) 59 | 4 | Weather Condition | Clear |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--------------------------------------|-------------------|---|--------|------------------|
| Parameter | 1) nit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part- 23); 2022 | 68 | 100 (34hrs) |
| Particulate Matter (PM2.5) | ug/m² | 15 5182 (Part- 24): 2019 | 36 | 60 (24hrs) |
| Sulphur Di-Oxide (SO _E) | µg/m ⁷ | 15 5182 (Part-11/Sec-1): 2023 | 11.9 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6): 2022 | 25.1 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ^h | IS 5182 (Part- 9); 2019 | <20.0 | 100 (8lirs) |
| Ammonia (NH ₃) | µg/m³ | 15 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (Rhrs) |
| Lead (Pb) | Marin | (S 5182 (Part- 32): 2019 | 0.605 | 1 (24hrs) |
| Nickel (Ni) | ng/m" | 15 5182 (Part- 26); 2020 | < 6,0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page I of Z

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/2673 | Report Release Date | : 18.05.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | 28.03,2024 |

| ULR No. | : TC135872400000642F | |
|-------------|----------------------------|--|
| 11.EAR 1700 | * サイトサンプロスティルのAbdutationを発 | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--|-------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C _s H _s) | µg/m¹ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m² | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) |

Quality Managor ELES PVT. LTD.

- * End of Report***

Authorised Signatory

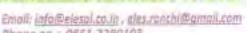
Ph. Dependra Kumar Simus Ph. D Environmental Enga ELES Pvt. Ltd. Technical Mann

Page 2 of 2

The Disconcent stated as Text Report, a insued by the Laboratory unfor General Torms and Conditions, only of Company before fire first in pre-approved format. The results shown in the Text Report rather or return only of the job analysis along by the Laboratory of the information smooth on the Text Report in the provided on the indicated by the first of client is interestinged. The Laboratory is exposed to the information or this provided on the report, except the information which is provided by the client. The Report ration be reportlessed except to full and any part of the report is not taken out of contest, within prior written approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions underse prior permission has been accurred from the Managements of the Laboratory. Attention or district to depend on the Text Report is undowned and offenders may be presented to the full that expect of the laboratory are retained for 30 days from the Data of retinated may be the Text Report. The samples from Regulatory before such to be returned as expected. Any type of Observations or Compiliation from the Beginning to the days within 15 days from the Data Report in the Report retrining to the text before, no complexed well be assepted. The entire that allowed armitimed in Text Report in 24 hours format. After the state of the Intertum Links 1701 (Lower Destinate Links).



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Sir.

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/2674 | Report Release Date | : 18.05.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | 28.03.2024 |
| ULR No. | : TC135872400000643F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/2965 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine |
| Address | ; Lohardaga, Jharkmand-#35302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 10.05.2024 to 11.05.2024 : 13.05.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | ; Operational | Sampling Done By | : ELES Pvt. Ltd. |
| Period of Analysis | = 13.05.2024 to 18.05.2024 | Sample Condition | : Sealed & Preserved |

| MI | ETEOROLOGICAL INFO | MATION | | | |
|----|--------------------------|--------|----|----------------------------|---------|
| 1 | Average Temperature (°C) | : 11 | 2 | Barometric Pressure (mmHg) | 5742 |
| 3 | Relative Humidity (%) | : 59 | -4 | Weather Condition | : Clear |

| Discipline: (| Chemical | Group: Atm | ospheric Pollu | tion |
|--------------------------------------|-------------------|---|----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m ^λ | IS 5182 (Part-23): 2022 | 67 | 100 (24hm) |
| Particulate Matter (PM2.5) | na/m _f | IS 5182 (Part- 24): 2019 | 34 | 60 (74hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ¹ | (\$ 5181 (Part-II/Sec-1): 2023 | 8.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m1 | IS 5182 (Part- 6): 2022 | 22.5 | 80 (24hrs) |
| Ozone (O ₁) | µg/m | IS 5182 (Part- 9): 2019 | <20.0 | (00 (8hrs) |
| Atumonis (NH ₁) | ug/m³ | IS 5182 (Part- 25): 2018. | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mit, m. | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (Shrs) |
| Load (Pb) | μg/m ³ | IS 5182 (Part- 22); 2010 | 0.01 | 1 (24hm) |
| Nickel (Ni) | ng/m | 18 5182 (Part- 26): 2020 | <6.0 | 20 (Amount) |
| Arsenic (As) | ng/m | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page 1 of 2

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TEST REPORT

18.05.2024 : ELES/RNC/2024/2674 Report Release Date Test Report No. : 13612312113 Work Order Date : 28.03.2024 Work Order No.

: TC135872400000643F ULR No.

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|----------------------|-------------------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (Calla) | µg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m ¹ | ELES/GC/SOP/95: 2023 | < 0.5 | OI(Annual) |

ARASHINUMAR Quality Managur

ELES PVT LTD.

****End of Report****

Authorised Signatory

Dr. Deependra Kumai Tihna Ph D Environmentel Engo

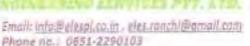
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Website www.elespl.co.in

TEST REPORT

| Test Report No. | : ELES/RNC/2024/2675 | Report Release Date | : 18.05,2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400000644F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | ELES/RNC/2024/AA/2966 Near Utkarmit Rajkiya Prathonii Vidyalaya Dumrapart Village Pakhar Bauxite Mine |
| Address | ; Lohardaga, Tharkhand-835307 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | = 10.05.2024 to 11.05.2024 ± 13.05.2024 = Ambient Air = ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | ELES Pvt. Ltd. |
| Period of Analysis | : 12.05.2024 to 18.05,2024 | Sample Condition | Sealed & Preserved |

| MI | ETEOROLOGICAL INFORMATION | | | |
|----|-------------------------------|---|----------------------------|---------|
| 1 | Average Temperature (*C) : 33 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 59 | 4 | Weather Condition | : Clear |

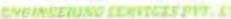
| Discipline: (| Chemical | Group: Atm | ospheric Pollu | rtion |
|--------------------------------------|--------------------|---|----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 69 | (00 (24hrs) |
| Particulate Matter (PM2.5) | μg/m ³ | IS 5182 (Part- 24): 2019 | 35 | 60 (24bm) |
| Sulphur Di-Oxide (SO ₂) | µg/m | IS 5182 (Part- II/Sec- 1): 2023 | 8,6 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m ¹ | IS 5182 (Part- 6): 2022 | 22.4 | 80 (24ius) |
| Ozone (O ₃) | jug/m | 15 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Animonia (NH ₃) | jug/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hm) |
| Lead (Pb) | jeg/m ³ | IS 5182 (Part- 22): 2019 | 0.009 | 1 (24hrs) |
| Mickel (Ni) | rig/mi | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | rig/m ³ | ELES/AIR/SOP/01; 2021 | <2.0 | 06.(Ammid) |

Page 1 of Z

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



TEST REPORT

| Test Report No. | ELES/RNC/2024/2675 | Report Release Date | : 18.05.2024 |
|-----------------|--|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| are as as | NO. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10 | | |

ULR No. TC135872400000644F

| Discipline: Chemical | | Group: Aimospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Barwene (C ₁ H ₁) | µg/m* | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrenc | ng/m" | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) | |

Reviewed by

AKASH KUMAR Quality Managur ELES PVT. LTD End of Report

Authorised Signatory

Ph. D Environments (S.25).

ELES PVI. Ltd. Technical Menno

Page 2 of 2

The Common mane's at Test Report is a second by the Laboratory under General Terms and Condisses, only no Company letter betall in producing draws. The results above in the Test Report reflects the findings done by the Laboratory of the time of involvement only on the provided on the toport, except the information which is provided by the client. The Report extent to report except the information which is provided by the client. The Report extent to report except in full and any part of the report is not alarm onto Control, without provided in the Laboratory. The Report in full on the part shall not be published, advertice, and for any legal actions online prior permission has been negated from the Management of the Laboratory. Alterials in the finding of liability, companies on the Laboratory Attention of Endows to the Himination of liability, companies except of the loss. All the samples are retained to additional of reliabilities of liability and provided to the fallows of the Test Report. The samples from Regulatory bodies are to be retained as specified. Any type of Communication will be accepted. The count Time schedule mentioned in Test Report is at Test Report in Engineering and Managements. After the time perpet material before, no association will be accepted. The count Time schedule mentioned in Test Report in a Schedule mentioned in Test Report in the Schedule mentioned in Test Report in a Schedule mention in Test Report in the Schedule mention in Test Report in t



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TEST REPORT

| Test Report No. | : ELES/RNC/2024/2892 | Report Release Date | : 28.05.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | ; RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400000852F | | | |

| CUSTOMER DET | TAILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---|--|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Sampling Date Sample Received Date Type of Sample | : ELES/RNC/2024/DW/3014 : 12.05.2024 : 15.05.2024 : Drinking Water | |
| Address | : Lohardaga, Jharkhand-835302 | Source/Location of Sample | : Near Mine Quarry No-K5, Rest Shelter, Pakhar(109.507ha) Bauxite Mine | |
| Mines Status | : Operational | Sampling Procedure Sampling Done By | : ELES/DOC/SMPL/01 : ELES Pvt. Ltd. | |
| Period of Analysis | | Sample Condition | : Sealed & Preserved | |

| Discipline: Chemical | Discipline : Chemical Group : Water | | | | | |
|--|-------------------------------------|---|------------------|---------------------|----------------------|--|
| Parameter | Unit | Test Protocol | Result | Acceptable Limit | Permissible Limit | |
| pH (at 25.5 °C) | ⊕: | APHA 24th Ed.2023, 4500-H | 6.54 | 6.5-8.5 | No Relaxation | |
| Turbidity | NTU | APHA 24th Ed.2023, 2130 B | 2.07 | 1.0 | 5.0 | |
| Taste | 10-11 | APHA 24th Ed.2023, 2160 C | Agreeable | Agreeable | Agrecable | |
| Odour | | IS 3025 (Part-5) (2018 | Agreeable | Agreeable | Agreeable | |
| Colour | Hazen | APHA 24th Ed.2023, 2120B&D | 1.0 | 5 | 15 | |
| Total Dissolved Solids (TDS) | mg/L | APHA 24th Ed.2023, 2540B,C&D | 64 | 500 | 2000 | |
| Chloride (as CI) | mg/L | APHA 24th Ed.2023, 4500 Cl B | 6.74 | 250 | 1000 | |
| Fluoride (as F) | mg/L | APHA 24th Ed.2023, 4500 F-D | BDL (DL: 0.1) | 1.0 | 1.5 | |
| Total Alkalinity (as CaCO ₂) | mg/L | APHA 24th Ed 2023, 2320 B | 16.4 | 200 | 600 | |
| Total Hardness (as CaCO ₃) | mg/L | APHA 24th Ed.2023, 2340 C | 14.3 | 200 | 600 | |
| Sulphate (as SO ₁) | mg/L | APHA 24th Ed. 2023, 4500 SO ₄ th-E | 1.45 | 200 | 400 | |

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) 6ST NO:- 20AAECE971301Z4

ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2024/2892 Report Release Date : 28.05.2024

Work Order No. : RP/MJB/MM/24/0088/00 Work Order Date : 30.03.2024

ULR No. : TC135872400000852F

| Discipline : Chemic | al | Grou | ip: Water | | ory Limit 10500:2012 |
|--|------|--|---------------------|---------------------|-------------------------|
| Parameter | Unit | Test Protocol | Result | Acceptable Limit | Permissible Limit |
| Nitrate (as NO ₃) | mg/L | APHA 24 th Ed.2023, 4500 NO ₃ -B | BDL (DL: 0.5) | 45 | No Relaxation |
| Phenolic Compound (as C ₆ H ₈ 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 24th Ed.2023, 3500 Ca B | 3.8 | 75 | 200 |
| Anionic Surfactants (as MBAS) | mg/L | APHA 24th Ed.2023, 5540-C | BDL (DL: 0.025) | 0.2 | 1.0 |
| Discipline : Chemie | cal | Gre | oup: Residues i | n 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 24th Ed.2023; 3111B | BDL (DL: 0.003) | 0.003 | No Relaxation |
| Total Chromium(as Cr) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.03) | 0.05 | No Relaxation |
| Copper (as Cu) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.03) | 0.05 | 1.5 |
| Cyanide (as CN) | mg/L | APHA 24 th Ed.2023, 4500 CN-E | BDL. (DL: 0.012) | 0.05 | No Relaxation |
| Iron (as Fe) | mg/L | APHA 24th Ed.2023; 3111B | 0.089 | 1.0 | 1.0 |
| Lead (as Pb) | mg/L | APHA 24th Ed,2023; 3111B | BDL (DL: 0.01) | 0.01 | No Relaxation |
| Manganese (as Mn) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.05) | 0.1 | 0.3 |
| Mercury (as Hg) | mg/L | 1S 3025 (Part-48): 2019 | BDL (DL: 0.001) | 0.001 | No Relaxation |

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CW: U74995/H2018PfC011125

ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 204AECE9713D124

ENGINEERING SERVICES PVT. LTD.

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

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



TC-12887

TEST REPORT

| Test Report No. | : ELES/RNC/2024/2892 | Report Release Date | : 28.05.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400000852F | | |

| Discipline: Chemical | | Group : Resid | ues in Water | Regulatory Limit as per IS10500:2012 | |
|--|------|--------------------------|-------------------|---|----------------------|
| Parameter | Unit | Test Protocol | Result | Acceptable | Permissible Limit |
| Selenium (as Se) | mg/L | IS 3025 (Part-56): 2019 | BDL (DL: 0.01) | 0.01 | No Relaxation |
| Zinc (as Zn) | mg/L | APHA 24th 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 |
| Pesticides | | | | Li | mit |
| Alachior | μg/L | ELES/GC/SOP/01: 2023 | BDL (DL; 0.5) | - 1 | 20 |
| Atrazine | μg/L | ELES/GC/SOP/01: 2023 | BDL (DL; 0,5) | 2 | 0.1 |
| Butachlor | µg/L | ELES/GC/SOP/01; 2023 | BDL (DL: 0.5) | 125 | |
| Chlorpyriphos | 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 | 5.0 |
| Malathion | µg/L | ELES/GC/SOP/01: 2023 | BDL (DL: 0.5) | | 90 |
| 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) | 0,1 | |
| 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 |

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

ENGINEERING SERVICES PVT. LTD.

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

Website: www.elespl.co.in



TEST REPORT

Test Report No. : ELES/RNC/2024/2892 Report Release Date : 28.05.2024

Work Order No. : RP/MJB/MM/24/0088/00 Work Order Date : 30.03.2024

ULR No. : TC135872400000852F

| Pesticides | | | | |
|---|------------|----------------------|--------------------|-----------------------|
| Parameter | Unit | Test Protocol | Result | Limit |
| АІрһа НСИ | μg/L | ELES/GC/SOP/02: 2023 | BDL (DL: 0.006) | 0.01 |
| 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 | | Grou | p: Water | |
| Total Coliform (Qualitative) | Per 100 mL | IS 15185: 2021 | Not Detected | Shall not be detected |
| Escherichia eoli (Qualitative) | Per 100 mL | IS 15185: 2021 | Not Detected | Shall not be detected |

Remarks: I. pH and RFC done at Lab.

AKASH KUMAR Quality Manager ELES PVT. LTD.

****End of Report****

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

Page 4 of 4

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-934003 (IHARKHAND) GST NO:- 20AAECE9713D124 ENGINEERING SERVICES PVT. LTD.

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/2892 | Report Release Date | : 28.05.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---|--|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Sampling Date Sample Received Date Type of Sample | : ELES/RNC/2024/DW/3014 : 12.05.2024 : 15.05.2024 : Drinking Water | |
| Address | : Lohardaga, Jharkhand-835302 | Source/Location of Sample | : Near Mine Quarry No-K5, Rest Shelter, Pakhar(109.507ha) Bauxite Mine | |
| Mines Status | : Operational | Sampling Procedure Sampling Done By | : ELES/DOC/SMPL/01 : ELES Pvl. Ltd. | |
| Period of Analysis | : 15.05.2024 to 23.05.2024 | Sample Condition | : Sealed & Preserved | |

| Discipline : Chemical | | Group : Water | Group : Water | | story Limit S 10500:2012 |
|-----------------------|------|-----------------------|------------------|------------|-----------------------------|
| Parameter | Unit | Test Protocol | Result | Acceptable | 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.

AKASH KUMAR Quality Managar

ELES PVT. LTD.

****End of Report****

Authorised Signatory

Dr. Deependra Kumar Sinha Ph. D Environmental Engg

ELES Pvt. Ltd. Technical Miena

Page I of I

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CONTENT

| | Minerals & Minerals: Pakhar (109.507) Environmental Monitoring Report June 20 | 24 |
|---|---|----|
| | Pakhar (109.507) | |
| | AMBIENT AIR QUALITY- CORE ZONE | |
| 1 | Near Mine Quarry No-K7 | |
| 2 | Near Mine Quarry No-K9 | |
| 3 | Near Mine Quarry No-K5 | |
| 4 | Pakhar Loading Area | |
| | AMBIENT AIR QUALITY- BUFFER ZONE | |
| 1 | Near Bunglapart Village | |
| 2 | Yatri Shed (Near K-10) | |
| 3 | Near UtkarmitRajkiyaPrathmikVidyalayaBunglapart Village | |
| 4 | Near UtkarmitRajkiyaPrathmikVidyalayaDumrapart Village | |







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

ENGINEERING SERVICES PYT. LTD

TC-HMF

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/3335 | Report Release Date | : 22.06.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400001287F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3692 : Near Mine Quarry No-K7 Pakhar (109,507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 14.06.2024 to 15.06.2024 : 17.06.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 17.06.2024 to 22.06.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFORMATION | | | | |
|----|-------------------------------|---|---------------------------|---------|--|
| 1 | Average Temperature (°C) : 39 | 2 | Barometric Pressure (mmHg | () :742 | |
| 3 | Relative Humidity (%) : 58 | 4 | Weather Condition | : Clear | |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | |
|--------------------------------------|-------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 61 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 30 | 60 (24hrs) |
| Sulphur Di-Oxide (SQ ₂) | μg/m³ | IS 5182 (Part-11/Sec-1): 2023 | 8.2 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 23.9 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | 1S 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m³ | 1S 5182 (Part- 22): 2019 | 0.011 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ^y | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page 1 of 2

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

ENGINEERING SERVICES PUT. LTD.

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/3335 | Report Release Date | : 22.06.2024 | |
|-----------------|--|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 | |
| | THE RESERVE OF THE PROPERTY OF | | | |

ULR No. : TC135872400001287F

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--|-------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | 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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE971301Z4

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Website: www.elespl.co.in

TO-LINET

TEST REPORT

| Test Report No. | : ELES/RNC/2024/3336 | Report Release Date | ; 22.06.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400001288F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3693 : Near Mine Quarry No-K9 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 14.06.2024 to 15.06.2024 : 17.06.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 17.06.2024 to 22.06.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| M | ETEOROLOGICAL INFORMATI | ON | | |
|---|-------------------------------|----|---------------------------|---------|
| 1 | Average Temperature (°C) : 39 | 2 | Barometric Pressure (mmHg |) :742 |
| 3 | Relative Humidity (%) : 58 | 4 | Weather Condition | : Clear |

| Discipline: 0 | Chemical | Group: Atm | Group: Atmospheric Pollution | | | |
|--------------------------------------|-------------------|---|------------------------------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 69 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | µg/m³ | IS 5182 (Part- 24): 2019 | 34 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 10.1 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 22.7 | 80 (24hrs) | | |
| Ozone (O ₁) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₃) | μg/m³ | 1S 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | 1S 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | µg/m² | IS 5182 (Part- 22): 2019 | 0.012 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m ³ | 1S 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

Page 1 of 2

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Benzene (C,H,)

ENVIRONMENTAL LABORATORIES &

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

µg/m3

INCERING SERVICES PYT. LTD.

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

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



05(Annual)

TEST REPORT

| Test Report No. | ; ELES/RNC/2024/3336 | Report Release Date | : 22.06.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400001288F | | | |

| Discipline | Discipline: Chemical | | Group: Atmospheric Pollution | | |
|------------|----------------------|---------------|------------------------------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |

ELES/GC/SOP/06: 2023

Benzo-(a)-Pyrene ng/m 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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97130124

ENGINEERING SERVICES PVT. LED.

TC-CISST

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/3337 | Report Release Date | : 22.06.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400001289F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|---------------------------------------|---|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3694 : Near Mine Quarry No-K5 Pakhar (109.507 ha) Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 14.06.2024 to 15.06.2024 : 17.06.2024 |
| Mines Status | Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPI/02 |
| Period of Analysis | : 17.06.2024 to 22.06.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Séaled & Preserved |

| MI | ETEOROLOGICAL INFORMATIO | N | | |
|----|-------------------------------|---|-------------------------|-----------|
| 1 | Average Temperature (°C) : 39 | 2 | Barometric Pressure (mm | Hg) : 742 |
| 3 | Relative Humidity (%) : 58 | 4 | Weather Condition | : Clear |

| Discipline: 0 | Chemical | Group: Atm | Group: Atmospheric Pollution | | | | |
|--------------------------------------|----------|---|------------------------------|------------------|--|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 60 | 100 (24hrs) | | | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 32 | 60 (24hrs) | | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 7.2 | 80 (24hrs) | | | |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 19.5 | 80 (24hrs) | | | |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | | |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | | | |
| Carbon Monoxide (CO) | mg/m³ | 1S 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | | |
| Lead (Pb) | μg/m³ | 1S 5182 (Part- 22); 2019 | 0.009 | 1 (24hrs) | | | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | | |

Page 1 of 2

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

ENGINEERING SERVICES PVT. LTD

Website: www.elespl.co.in

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



TEST REPORT

Test Report No. : ELES/RNC/2024/3337 Report Release Date : 22.06.2024

Work Order No. : RP/MJB/MM/24/0088/00 Work Order Date : 30.03.2024

ULR No. : TC135872400001289F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | µg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | 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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PLOT NO 30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4

ENGINEERING SERVICES PYT. LTD.

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

TO-LANSET

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/3338 | Report Release Date | : 22.06.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/00 | Work Order Date | : 30.03,2024 | |
| ULR No. | : TC135872400001290F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------------------------|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3695 : Pakhar Loading Area Pakhar (109.507 ha) Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 14.06,2024 to 15.06,2024 : 17.06,2024 |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 |
| Period of Analysis | : 17.06.2024 to 22.06.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved |

| MI | ETEOROLOGICAL INFO | RMATION | | | |
|----|--------------------------|---------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | 2 39 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 58 | 4 | Weather Condition | : Clear |

| Discipline: 0 | Chemical | Group: Atm | ospheric Pollu | ition |
|--------------------------------------|-------------------|---|----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 71 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 42 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part-11/Sec-1): 2023 | 12.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6); 2022 | 23.8 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9); 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ⁵ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22): 2019 | 0.014 | I (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page 1 of 2

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

ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No. : ELES/RNC/2024/3338 Report Release Date : 22.06.2024

Work Order No. : RP/MJB/MM/24/0088/00 Work Order Date : 30.03.2024

ULR No. : TC135872400001290F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) | |

AKASRIKUWAR

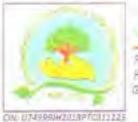
Quality Manager ELES PVT, LTD. ****End of Report****

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 HATTA, RANCHI-834003 (IHARKHANO) GST NO~ 20AAECE9713D1Z4



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



TEST REPORT

| Test Report No. | ; ELES/RNC/2024/3343 | Report Release Date | : 22.06.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400001295F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|---|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3700 : Near Bunglapart Village Pakhar Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 15.06.2024 to 16.06.2024 : 17.06.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | ; ELES Pvt. Ltd. |
| Period of Analysis | : 17.06.2024 to 22.06.2024 | Sample Condition | : Sealed & Preserved |

| MI | ETEOROLOGICAL INFORMATION | | | |
|----|-----------------------------|----|----------------------------|---------|
| 1 | Average Temperature (°C) 39 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 57 | -4 | Weather Condition | : Clear |

| Discipline: | Chemical | Group: Atmospheric Pollution | | | | |
|--------------------------------------|-------------------|---|--------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 56 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | µg/m³ | IS 5182 (Part- 24): 2019 | 31 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part-II/Sec- 1): 2023 | 11.5 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6); 2022 | 19.1 | 80 (24hrs) | | |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₄) | μg/m³ |)S 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m ³ | 1S 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | μg/m² | IS 5182 (Part- 22): 2019 | 0.007 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26); 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

Page 1 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA RANCHI-834003 (JHARKHAND) GST NO: 20AAECE972301Z4



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

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/3343 | Report Release Date | : 22.06.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400001295F | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------------------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m [†] | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | 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, MANEARCVAR ENCLAVE. TUPUDANA HATIA. RANCHI-834003 (JHARKHAND) 65T NO:- JOAAECE9713D114



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

Website: www.elespi.co.in



TEST REPORT

| Test Report No. | : ELES/RNC/2024/3344 | Report Release Date | : 22,06.2024 | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 | |
| ULR No. | : TC135872400001296F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3701 : Yatri Shed (Near K-10) Pakhar Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 15.06.2024 to 16.06.2024 : 17.06.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | 2 Operational | Sampling Done By | : ELES Pvt. Ltd. |
| Period of Analysis | : 17.06.2024 to 22.06.2024 | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (PC) | : 39 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 57 | 4 | Weather Condition | ; Clear |

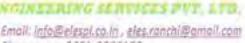
| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | | |
|--------------------------------------|-------------------|--|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 62 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 31 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 13,3 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Pari- 6): 2022 | 22.7 | 80 (24hrs) | |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | |
| Ammonia (NH ₃) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) | |
| Lead (Pb) | µg/m² | IS 5182 (Part- 22): 2019 | 0.005 | 1 (24hrs) | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |

Page I of 2

The Document stated as Test Report is intered by the Laboratory states General Terms and Conditions, only on Company letter read in pre-approved forms. The results shawn in the Test Report tester or relates only to the jubianalysis 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 beneat of client's instructions. The Laboratory is responsible for all the information or data provided on the report, except the information reflects 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 procuration approval of the Laboratory. The Report is full or in part shall not be published, advertise, used for say legal access unless prior permission has been accured from the Management of the Laboratory. Attention is finish not the limitation of liability, compensation and jurisdiction issue. Any annithment all the samples are intention of the content or appearance of the Test Report is unlessful and elimitators may be proceeded to the follows extent of the law. All the samples are intended the 50 days from the Date of permissions of the Test Report. The samples from Regulatory bodies are to be returned as specified. Any type of Observations or Compliants' regarding the Report. their be done within Lithry from the Bate of Test Report in the Report of the time period and before, no compliants will be accepted. The entire Terms subsolute mentioned in Test Report in the All the compliants of the time period and the time period and before, no compliants will be accepted. The entire Terms subsolute mentioned in Test Report in the All the compliants and Albert released to the time period and before.



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



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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/3344 | Report Release Date | : 22.06.2024 | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 | |
| ULR No. | : TC135872400001296F | | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------------------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C _s H _s) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m ³ | 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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-B34003 (JHARKHAND) G57 NO:- 204AECE9713D124



Website: www.elespi.co.in

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

TIC-HASSI

TEST REPORT

| Test Report No. | : ELES/RNC/2024/3345 | Report Release Date | : 22.06.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400001297F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|-------------------------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2024/AA/3702 |
| | | Location | : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date | Pakhar Bauxite Mine : 15.06.2024 to 16.06.2024 |
| | | Sample Received Date Type of Sample | : 17.06.2024 : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | : ELES Pvt, Ltd. |
| Period of Analysis | : 17.06.2024 to 22.06.2024 | Sample Condition | : Sealed & Preserved |

| MI | ETEOROLOGICAL INFORM | ATION | | | |
|----|--------------------------|-------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | 39 | 2 | Barometric Pressure (mmHg) | : 7.42 |
| 3 | Relative Humidity (%) | 57 | 4 | Weather Condition | : Clear |

| Discipline: Chemical | | Group: Atm | Group: Atmospheric Pollution | | |
|--------------------------------------|-------------------|---|------------------------------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part- 23): 2022 | 60 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 29 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | 1S 5182 (Part-II/Sec-1); 2023 | 7.8 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₂) | μg/m ³ | 1S 5182 (Part- 6); 2022 | 17.2 | 80 (24hrs) | |
| Ozone (O ₃) | µg/m² | 1S 5182 (Part- 9): 2019 | <20.0 | 190 (Shrs) | |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m ⁵ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | |
| Lead (Pb) | µg/m | IS 5182 (Part- 22): 2019 | 0.01 | 1 (24hrs) | |
| Nickel (Ni) | ng/m¹ | IS 5182 (Part- 26): 2020 | <6.6 | 20 (Annual) | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |

Page 1 of 2

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FLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE971301Z4

ENGINEERING SERVICES PVT, LTD

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

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/3345 | Report Release Date | ; 22.06.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| | | | |

ULR No. : TC135872400001297F

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--|-------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C ₆ H ₆) | µg/m³ | ELES/GC/SOP/06; 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | 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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE9713D1Z4



Emall: info@elespl.co.in . eles.ranchi@amail.com

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/3346 | Report Release Date | : 22.06.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400001298F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|----------------------|--|---|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/3703 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine |
| Address Mines Status | : Lohardaga, Jharkhand-835302 : Operational | Sampling Date Sample Received Date Type of Sample Sampling Procedure Sampling Done By | : 15.06.2024 to 16.06.2024 : 17.06.2024 : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd. |
| Period of Analysis | : 17.06.2024 to 22.06,2024 | Sample Condition | : Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|----------------------------|---------|
| 1 | Average Temperature (°C) : 39 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 57 | 4 | Weather Condition | : Clear |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|-------------------------------------|-------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 64 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 29 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 10.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO2) | μg/m³ | IS 5182 (Part- 6): 2022 | 18.1 | 80 (24hrs) |
| Ozone (O ₃) | µg/m³ | IS 5182 (Part- 9); 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₂) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m ⁷ | 1S 5182 (Part- 22): 2019 | 0.011 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m² | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page 1 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECES7130124

ENGINEERING STRVIGES PVT. LTD

Email: Info@elesal.co.in , gles.ranchi@amail.com

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/3346 | Report Release Date | : 22.06.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400001298F | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--|-------|------------------------------|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C _s H _s) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) |

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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CONTENT

| | Minerals & Minerals: Pakhar (109.507) Environmental Monitoring Report | July2024 |
|---|---|----------|
| | Pakhar (109.507) | |
| | AMBIENT AIR QUALITY- CORE ZONE | |
| 1 | Near Mine Quarry No-K7 | |
| 2 | Near Mine Quarry No-K9 | |
| 3 | Near Mine Quarry No-K5 | |
| 4 | Pakhar Loading Area | |
| | AMBIENT AIR QUALITY- BUFFER ZONE | |
| 1 | Near Bunglapart Village | |
| 2 | Yatri Shed (Near K-10) | |
| 3 | Near UtkarmitRajkiyaPrathmikVidyalayaBunglapart Village | |
| 4 | Near UtkarmitRajkiyaPrathmikVidyalayaDumrapart Village | |





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

ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4078 | Report Release Date | : 22.07.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400002013F | | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/4673 : Near Mine Quarry No-K7 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 13.07.2024 to 14.07.2024 : 17.07.2024 : Ambient Air | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 17.07.2024 to 22.07.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) : 31 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) : 64 | 4 | Weather Condition | : Partly Cloudy |

| Discipline: Chemical | | Group: Atm | Group: Atmospheric Pollution | | |
|--------------------------------------|-------------------|---|------------------------------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23); 2022 | 59 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 27 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 7.4 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6): 2022 | 22.5 | 80 (24hrs) | |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m³ | 1S 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | |
| Lead (Pb) | μg/m [‡] | IS 5182 (Part- 22): 2019 | 0.008 | 1 (24hrs) | |
| Nickel (Ni) | ng/m³ | 1S 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |

Page 1 of 2

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

ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

| I'll B No. | TC12597240000701 | Work Order Date | , 50.05,2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| Test Report No. | : ELES/RNC/2024/4078 | Report Release Date | : 22.07.2024 | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₅ H ₄) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) | |

Reviewed by AKASH KUMAR Quality Managar ELES PVT LTD

****End of Report****

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 HATIA, RANCHI-B34003 (JHARKHAND) GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4079 | Report Release Date | : 22.07.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400002014F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/4674 : Near Mine Quarry No-K9 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 13.07.2024 to 14.07.2024 : 17.07.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 17.07.2024 to 22.07.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFORMATION | | | |
|----|-------------------------------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) : 31 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) : 64 | 4 | Weather Condition | : Partly Cloudy |

| Discipline: 0 | Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--------------------------------------|----------------------|---|------------------------------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 64 | 100 (24hrs) | | |
| Particulate Matter (PM2,5) | μg/m³ | IS 5182 (Part- 24): 2019 | 31 | -60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 8.5 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₁) | μg/m³ | IS 5182 (Part- 6): 2022 | 21.3 | 80 (24hrs) | | |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | 0.007 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

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

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TQ-12867

TEST REPORT

| III.R No. | : TC135872400002014F | | | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | ; RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| Test Report No. | : ELES/RNC/2024/4079 | Report Release Date | : 22.07.2024 | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05; 2023 | <0.5 | 01(Annual) | |

AKASH KUMAR Quality Managar ELES PVT, LTD

****End of Report****

Ph. D Environmental Engg.

ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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

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Website : www.elespl.co.in



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4080 | Report Release Date | : 22.07.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30,03,2024 | |
| ULR No. | : TC135872400002015F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | . Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/4675 : Near Mine Quarry No-K5 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 13.07.2024 to 14.07.2024 : 17.07.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | ± 17.07.2024 to 22.07.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| METEOROLOGICAL INFORMATION | | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|-----------------|--|
| 1 | Average Temperature (°C) | :31 | 2 | Barometric Pressure (mmHg) | : 743 | |
| 3 | Relative Humidity (%) | : 64 | 4 | Weather Condition | : Partly Cloudy | |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | | | |
|--------------------------------------|--|---|--------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 62 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 31 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 7.2 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 19.5 | 80 (24hrs) | | |
| Ozone (O ₃) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | 1S 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | 0.003 | 1 (24hrs) | | |
| Nickel (Ni) | el (Ni) ng/m³ IS 5182 (Part- 26): 2020 | | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

Page 1 of 2

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

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TEST REPORT

Test Report No. : ELES/RNC/2024/4080 Report Release Date : 22.07.2024

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

ULR No. : TC135872400002015F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) | |

Reviewed by AKASH KUMAR Quality Manager ELES PVT LTD

****End of Report***

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/2024/4081 | Report Release Date | : 22.07.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400002016F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|---------------------------------------|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/4676 : Pakhar Loading Area Pakhar (109.507 ha) Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 13.07.2024 to 14.07.2024 : 17.07.2024 |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 |
| Period of Analysis | : 17.07.2024 to 22.07.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | ON | | |
|---|------------------------------|----|---------------------------|-----------------|
| 1 | Average Temperature (°C) :31 | 2 | Barometric Pressure (mmHg | ;) ; 743 |
| 3 | Relative Humidity (%) : 64 | 4 | Weather Condition | : Partly Cloudy |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | | |
|--------------------------------------|-------------------|---|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | μg/m³ | JS 5182 (Part- 23): 2022 | 59 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | µg/m³ | IS 5182 (Part- 24): 2019 | 30 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part-11/Sec-1): 2023 | 8.1 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₃) | μg/m³ | IS 5182 (Part- 6): 2022 | 19.4 | 80 (24hrs) | |
| Ozone (O ₃) | μg/m [‡] | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | |
| Ammonia (NH ₃) | μg/m³ | 1S 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) | |
| Lead (Pb) | μg/m ³ | IS 5182 (Part- 22); 2019 | 0.007 | 1 (24hrs) | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |

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Save Environment, Save Future



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TC-13587

TEST REPORT

| Test Report No. | ; ELES/RNC/2024/4081 | Report Release Date | : 22.07.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400002016F | | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------------------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m ^γ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Armual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) | |

AKASH KUMAR Quality Managar 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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FLOT NO-30, MANSAROVAR ENCLAVE, TURUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO - 20AAECE9713D124

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

Website: www.elespl.co.in



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4086 | Report Release Date | : 22.07.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002021F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2024/AA/4681 |
| | | Location | : Near Bunglapart Village Pakhar Bauxite Mine |
| | | Sampling Date | : 14.07.2024 to 15.07.2024 |
| Address | : Lohardaga, Jharkhand-835302 | Sample Received Date | : 17.07.2024 |
| | The second second | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | : ELES Pvt. Ltd. |
| Period of Analysis | : 17.07.2024 to 22.07.2024 | Sample Condition | : Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) : 30 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 63 | 4 | Weather Condition | : Partly Cloudy |

| Discipline: (| Chemical | Group: Atm | ospheric Pollu | tion |
|--------------------------------------|-------------------|---|----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 52 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m³ | IS 5182 (Part- 24): 2019 | 27 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ¹ | IS 5182 (Part- II/Sec- 1): 2023 | 8.9 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6): 2022 | 17.5 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2013 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m³ | TS 5182 (Part- 22): 2019 | 0.009 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page I of 2

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PLOT NO-30, MANSARO VAR ENCLAVE, TUPUDANA HATIA, RANCHI-833003 (JHARKHAND) GST NO:- 20AAECE97130124

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TC-155st

TEST REPORT

| Test Report No. | : ELES/RNC/2024/4086 | Report Release Date | : 22.07.2024 | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 | |
| ULR No. | : TC135872400002021F | | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------------------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m ¹ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Вепло-(а)-Ругепе | ng/m ³ | 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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POOT NO-30, MANSARDVAR ENGLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO- 20AAECEST13012A

ENGINEERING SERVICES PYT. LTD.

Email: <u>Infol®elespi.co.in</u> , eles ranchi@amail.co.m Phone no.: 0651-2290103



Websitz : www.alespil.co.in

TEST REPORT

| Test Report No. | : ELES/RNC/2024/4087 | Report Release Date | : 22.07.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002022F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/4682 : Yatri Shed (Near K-10) Pakhar Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 14.07.2024 to 15.07.2024 : 17.07.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | : ELES Pvt. Ltd. |
| Period of Analysis | : 17.07,2024 to 22.07.2024 | Sample Condition | : Sealed & Preserved |

| Mi | ETEOROLOGICAL INFOR | MATION | | | |
|----|--------------------------|--------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) | : 30 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 63 | 4 | Weather Condition | : Partly Cloudy |

| Discipline: 0 | Chemical | Group; Atm | ospheric Pollu | ition |
|--------------------------------------|----------|---|----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part-23); 2022 | 57 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 26 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 8.9 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 20,1 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₂) | µg/m³ | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m² | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8lus) |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | <0.002 | T (24hrs) |
| Nickel (Ni) | ng/m² | IS 5182 (Part- 26); 2020 | < 6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

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FLOT NO-30, MANSAROVAR ENCLAVE, TUPUBANA HATIA, RANCHI-834003 (JHARKHAND) 057 NO - 20AA ECE97330124

DINEERING SERVICES PVT. LTD. Email: Info@elespl.co.in . eles renchi@gmail.com Phone no.: 0631-2290103

Website: www.elespl.co.in.

TIC-CHART

TEST REPORT

| ULR No. | : TC135872400002022F | | | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 | |
| Test Report No. | : ELES/RNC/2024/4087 | Report Release Date | : 22.07,2024 | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023- | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05; 2023 | < 0.5 | 01(Annual) | |

Reviewed by AKASH KUMAR Quality Managur ELES PVT LTD.

****End of Report****

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

Page 2 of 2

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PLOT NO-SQ, MANEAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-ESADOS IJHARKHANDI ESTING: ZDANECESTISDIZA

ENGINEERING SERVICES PVT. LEB

Email: Info@vir rai.co.in , ripi.conti(@amuil.com Phone no.: 0651-2230103 Website : www.elespi.co.in



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4088 | Report Release Date | : 22.07.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002023F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2024/AA/4683 |
| | | Location | : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date | Pakhar Bauxite Mine : 14.07.2024 to 15.07.2024 |
| | | Sample Received Date | : 17.07.2024 |
| | | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | : ELES Pvt. Ltd. |
| Period of Analysis | : 17.07.2024 to 22.07.2024 | Sample Condition | : Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|----------------------------|-----------------|
| 1 | Average Temperature (°C) : 30 | 2 | Barometric Pressure (mmHg) | ;742 |
| 3 | Relative Humidity (%) : 63 | 4 | Weather Condition | : Partly Cloudy |

| Discipline: | Chemical | Group: Atm | ospheric Polle | ntion |
|--------------------------------------|-------------------|---|----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 55 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 24 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- II/Sec- 1): 2023 | 6.9 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₁) | µg/m ³ | IS 5182 (Part- 6); 2022 | 18.4 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20,0 | 100 (8hrs) |
| Ammonia (NH ₂) | μg/m² | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m [†] | IS 5182 (Part- 22): 2019 | 0.007 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ¹ | ELES/AIR/SOP/01: 2021 | 55 | 06 (Annual) |

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) SST NO:-20A85C397130114



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



TEST REPORT

| Test Report No. | ; ELES/RNC/2024/4088 | Report Release Date | : 22.07.2024 | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 | |

ULR No. : TC135872400002023F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | | |
|--|-------------------|------------------------------|--------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Benzene (C _E H ₆) | µg/m ¹ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) | | |

AKASH KUMAR Quality Managar

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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FLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HITTIA, RANCHI-834003 (JHARKHAND) SET NO-20486057350124



Email: info@elesul.co.in ; eles.ranchl@amoii.com; Phone no.: 0651-2290103 Websitz : www.elesul.co.in



TEST REPORT

| Test Report No. | ; ELES/RNC/2024/4089 | Report Release Date | : 22.07.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002024F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|--|--|--|
| Customer Name | - Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2024/AA/4684 | |
| | | Location | Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 14.07.2024 to 15.07.2024 : 17.07.2024 : Ambient Air : ELES/DOC/SMPL/02 | |
| Mines Status | : Operational | Sampling Done By | : ELES Pvt. Ltd. | |
| Period of Analysis | = 17.07.2024 to 22.07.2024 | Sample Condition | : Sealed & Preserved | |

| M | ETEOROLOGICAL INFORM | ATION | | | |
|---|----------------------------|-------|---|-----------------------------|-----------------|
| 1 | Average Temperature (°C) : | 30 | 2 | Barometric Pressure (nunHg) | : 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 ³ | IS 5182 (Part- 23): 2022 | 57 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 25 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | TS 5182 (Part- II/Sec- 1): 2023 | 7.2 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 16.8 | 80 (24hrs) | | |
| Ozone (O ₃) | µg/m³ | IS 5182 (Part- 9); 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₁) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | μg/m³ | 1S 5182 (Part- 22): 2019 | 0.015 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

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PLOT NO-20, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20A48CE97130124

ENGINEERING SENTICES PYT. LTD.

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Phone no.: 0651-3290103 Website: www.elespi.co.in



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4089 | Report Release Date | : 22.07.2024 | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 | |
| ULR No. | : TC135872400002024F | | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) | |

Reviewed by AKASH KUMAR Quality Managur 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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CONTENT

| | Minerals & Minerals: Pakhar (109.507) Environmental Monitoring Report | August 2024 |
|----|---|-------------|
| | Pakhar (109.507) | |
| | AMBIENT AIR QUALITY- CORE ZONE | |
| 1 | Near Mine Quarry No-K7 | |
| 2 | Near Mine Quarry No-K9 | |
| 3 | Near Mine Quarry No-K5 | |
| 4 | Pakhar Loading Area | |
| | AMBIENT AIR QUALITY- BUFFER ZONE | |
| 1. | Near Bunglapart Village | |
| 2 | Yatri Shed (Near K-10) | |
| 3 | Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village | |
| 4 | Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Vıllage | |
| | Drinking Water | |





PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (IHARRHAND) GST NO:- 20AAECE971301Z4

ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4602 | Report Release Date | : 16.08.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03,2024 |
| ULR No. | : TC135872400002527F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/5281 : Near Mine Quarry No-K7 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 06,08,2024 to 07,08.2024 : 09,08.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 09.08.2024 to 16.08.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFOR | MATION | | | |
|----|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 28 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Cloudy |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | | | |
|-------------------------------------|-------------------|---|--------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 63 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | μg/m ³ | IS 5182 (Part- 24): 2019 | 30 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part-11/Sec- 1): 2023 | 9.6 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO-) | μg/m³ | (S 5182 (Part- 6): 2022 | 23.1 | 80 (24hrs) | | |
| Ozone (O ₁) | µg/m³ | 1S 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22): 2019 | 0.012 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |

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

ENGINEERING SERVICES PUT. LTD.

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

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



TEST REPORT

| Test Report No. : ELES/RNC/2024/4602 Report Release Date | | |
|--|--------------|--|
| Work Order No. : RP/MJB/MM/24/0088/01 Work Order Date | : 30.03.2024 | |

ULR No. : TC135872400002527F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₀ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | 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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE971301Z4

ENGINEERING SERVICES PYT. LTD

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

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4603 | Report Release Date | : 16,08,2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400002528F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/5282 : Near Mine Quarry No-K9 Pakhar (109,507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 06.08,2024 to 07.08.2024 : 09.08,2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd. | |
| Period of Analysis | : 09.08.2024 to 16.08.2024 | Sampling Done By Sample Condition | : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFOR | MATION | | | |
|----|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 28 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | ; 69 | 4 | Weather Condition | : Cloudy |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | |
|-------------------------------------|-------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part- 23): 2022 | 69 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | 1S 5182 (Part- 24): 2019 | 35 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m ¹ | IS 5182 (Part- II/Sec- 1): 2023 | 9.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO2) | µg/m³ | IS 5182 (Part- 6): 2022 | 22.6 | 80 (24hrs) |
| Ozone (O ₂) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m³ | 1S 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | 0.012 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page 1 of 2

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

ENGINEERING SERVICES PVT. LTD.

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



TEST REPORT

Test Report No. : ELES/RNC/2024/4603 Report Release Date : 16.08.2024

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

ULR No. : TC135872400002528F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | µg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) | |

AKASH KUMAR Quality Manager ELES PVT LTD.

****End of Report****

Authorised Signatory

Dr. Deependra Kurnar Sinha Ph. D Environmental Engg. ELES Pvt. Ltd. Technical Mana-

Page 2 of 2

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



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4604 | Report Release Date | : 16,08.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03,2024 |
| ULR No. | : TC135872400002529F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/5283 : Near Mine Quarry No-K5 Pakhar (109,507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 06.08.2024 to 07.08.2024 : 09.08.2024 : Ambient Air | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 09.08.2024 to 16.08.2024 | Sampling Done By Sample Condition | : ELES Pvt, Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFOR | MATION | | | |
|----|--------------------------|--------|----|----------------------------|--------|
| 1 | Average Temperature (°C) | : 28 | 2 | Barometric Pressure (mmHg) | : 743 |
| 3 | Relative Humidity (%) | : 69 | -A | Weather Condition | Cloudy |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | |
|--------------------------------------|----------------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 64 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 30 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m ³ | IS 5182 (Part- II/Sec- 1): 2023 | 8.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 20.1 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | 1S 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m³ | 1S 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μ <u>μ</u> /m ³ | IS 5182 (Part- 22): 2019 | 0.006 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | 1S 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page 1 of 2

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



TEST REPORT

 Test Report No.
 : ELES/RNC/2024/4604
 Report Release Date
 : 16.08.2024

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

ULR No. : TC135872400002529F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------------------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₆ H ₆) | μg/m³- | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m [±] | 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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ENGINEERING SERVICES PUT, LTD.

Website: www.elespl.co.in

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/4605 | Report Release Date | : 16.08.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400002530F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|---------------------------------------|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/5284 : Pakhar Loading Area Pakhar (109.507 ha) Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | : 06.08.2024 to 07.08.2024 : 09.08.2024 |
| Mines Status | : Operational | Sampling Procedure Sampling Done By | : Ambient Air : ELES/DOC/SMPL/02 : ELES Pvt. Ltd. |
| Period of Analysis | : 09.08.2024 to 16.08.2024 | attended and the second | : Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|----------------------------|----------|
| _ | Average Temperature (°C) : 28 | 2 | Barometric Pressure (mmHg) | : 743 |
| | Relative Humidity (%) : 69 | 4 | Weather Condition | : Cloudy |

| Discipline: Chemical | | Group: Atmospheric Pollution | | |
|--------------------------------------|-------------------|---|--------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part- 23): 2022 | 64 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m³ | IS 5182 (Part- 24): 2019 | 33 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part-11/Sec-1): 2023 | 9.4 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m ³ | (S 5182 (Part- 6): 2022 | 20.1 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₄) | µg/m² | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | 0.011 | .1 (24hrs) |
| Nickel (Ni) | ng/m | 1S 5182 (Part- 26); 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

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ENGINEERING SERVICES PVT. LTD.

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

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



TEST REPORT

Test Report No. : ELES/RNC/2024/4605 Report Release Date : 16.08.2024

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

ULR No. : TC135872400002530F

| Discipline | : Chemical | Group: Att | mospheric Pollu | tion |
|--|------------|----------------------|-----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) |

Reviewed by
AKASH KUMAR
Quality Manager
ELES PVT. LTD.

****End of Report***

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

Page 2 of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (HARKHAND) SST NO:- JOAAECER7130321

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Email: info@elesal.co.in , eles.ranch@amail.com Phone no.: 0651-3290103



Website: www.eiespl.co.in TC-ts

TEST REPORT

| Test Report No. | : ELES/RNC/2024/4613 | Report Release Date | : 16,08,2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002538F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|---|---|
| Customer Name | Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/5292 : Near Bunglapart Village Pakhar Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 07.08.2024 to 08.08.2024 : 09.08.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | Operational | Sampling Done By | ELES Pvt. Ltd. |
| Period of Analysis | ± 09.08.2024 to 16.08.2024 | Sample Condition | : Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|--------------------------|-----------|
| 1 | Average Temperature (°C) : 28 | 2 | Barometric Pressure (mm) | Hg) : 742 |
| 3 | Relative Humidity (%) : 67 | 4 | Weather Condition | : Cloudy |

| Discipline: 0 | Themical | Group: Atm | ospheric Pollu | tion |
|-------------------------------------|-------------------|---|----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | ug/m³ | IS 5182 (Part- 23): 2022 | 46 | 100 (24hrs) |
| Particulate Matter (PM2,5) | µg/m ¹ | TS 5182 (Part- 24); 2019 | 22 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part- II/Sec- 1): 2023 | 6.3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO2) | µg/m³ | IS 5182 (Part- 6); 2022 | 15,8 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NFI) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m² | 1S 5182 (Part- 10): 2019 (NDIR Method) | <1,0 | 2 (Shrs) |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22); 2019 | 0,005 |) (24hrs) |
| Nickel (NI) | ng/m³ | IS 5182 (Part- 26): 2020 | <6,0 | 20 (Annual) |
| Arsenic (As) | ng/m² | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |

Page I of 2

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-#34003 (JHARKHAND) GST NO:- 20A4ECE9713D124

ENGINEERING SERVICES PAY, 170.

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



TEST REPORT

 Test Report No.
 : ELES/RNC/2024/4613
 Report Release Date
 : 16.08,2024

 Work Order No.
 : 13612312113
 Work Order Date
 : 28.03,2024

ULR No. : TC135872400002538F

| Discipline | : Chemical | Group: Atr | mospherie Pollu | ition |
|--|------------|----------------------|-----------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Benzene (C ₄ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | 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 Manan

Page 2 of 2

The Discussion is also as Text Report, is issued by the Laboratory under Georgia Torms and Conditions, only on Company letter head in pre-approved format. The results shown in the Text Report refers to relates only to the jub/analysis done by the Laboratory only. The information stated on the Text Report reflects the distings dotte by the Laboratory as 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 earnot be reproduced except in full and any part of the report is not sale out of context, without print without approval of the Laboratory. The Report in full or in part shall not be published, advertise, used for any legal actions unless prior permission has been second from the Management of the Laboratory. Attention is decision to the limitation of liability, compensation and particular assumptions. Attention is decision to the limitation of liability, compensation and particular assumptions are returned as laboratory. Attention is decision to the limitation of liability compensation and particular assumptions are returned as laboratory in the Text Report. The samples from Regulatory beginning to the fallow the limit text of the law. All the samples are trained for Jodays from the Date of references and the Text Report. The samples from Regulatory beginning to the time period stated before, no complaints will be accepted. The colors from the attention of the fallow from the law of the time period stated before no complaints will be accepted. The colors from the attention of the law.



PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-834003 (JHARKHAND) GST NO:- 20AAECE97,30124

ENGINEERING SERVICES PAY ECO.

Emoil: info@elesol.co.in , eles coccil@gmall.com Phone no.: 0651-2290103 Website / www.elespl.co.in



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4614 | Report Release Date | : 16.08.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002539F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/5293 : Yatri Shed (Near K-10) Pakhar Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 07.08.2024 to 08.08.2024 : 09.08.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | Operational | Sampling Done By | : ELES Pvt. Ltd. |
| Period of Analysis | : 09.08.2024 to 16.08.2024 | Sample Condition | ; Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | | | |
|---|-------------------------------|---|----------------------------|----------|
| 1 | Average Temperature (°C) : 28 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 67 | 4 | Weather Condition | : Cloudy |

| Discipline: 0 | Chemical | Group: Atmospheric Pollution | | | |
|--------------------------------------|-------------------|---|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | µg/m³ | 1S 5182 (Part- 23): 2022 | 53 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | μg/m³ | (S 5182 (Part- 24): 2019 | 20 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part-11/Sec-1): 2023 | 6.4 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₂) | µg/m ¹ | IS \$182 (Part- 6): 2022 | 17.5 | 80 (24hrs) | |
| Ozone (O _x) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | |
| Ammonia (NH ₁) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22): 2019 | <0.002 | 1 (24hrs) | |
| Nickel (NI) | ng/m³ | IS 5182 (Part- 26): 2020 | <6,0 | 20 (Annual) | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |

Page | of 2

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TEST REPORT

 Test Report No.
 : ELES/RNC/2024/4614
 Report Release Date
 : 16.08.2024

 Work Order No.
 : 13612312113
 Work Order Date
 : 28.03.2024

ULR No. : TC135872400002539F

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₅ H ₈) | ug/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | 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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PLOT NG-30, MANSAROVAR ENCLAVE, TURUDANA HATIA, RANCHI-834003 (JHARKHAND) 657 NO:- 20AAECE97130124

Email: into@elespl.co.in . eles,ranchi@amaii.com TO-15987

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/4615 | Report Release Date | : 16.08.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | 13612312113 | Work Order Date | ; 28.03.2024 |
| ULR No. | : TC135872400002540F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|----------------------|-------------------------------|--|---|
| Customer Name | - Hindalco Industries Limited | Sample Ref. No. Location | ELES/RNC/2024/AA/5294 Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglaparı Village Pakhar Bauxite Mine |
| Address Mines Status | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 07.08.2024 to 08.08.2024 : 09.08.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | : ELES Pyt. Ltd. |
| Period of Analysis | : 09.08.2024 to 16.08.2024 | Sample Condition | : Sealed & Preserved |

| Average Temperature (°C) | 128 | 2 | Barometric Pressure (mmHg) | :742 |
|--------------------------|-----|---|----------------------------|----------|
| Relative Humidity (%) | :67 | 4 | Weather Condition | ; Cloudy |

| Discipline: | Chemical | Group: Atmospheric Pollution | | | |
|--------------------------------------|----------|---|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | µg/m³ | (S 5182 (Part-23): 2022 | 48 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 21 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part-11/Sec-1): 2023 | 5.5 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | 1S 5182 (Part- 6): 2022 | 16.1 | 80 (24hrs) | |
| Ozone (O ₁) | μg/m³ | 1S 5182 (Part- 9); 2019 | <20.0 | 100 (8hrs) | |
| Ammonia (NH ₁) | µg/m¹ | 1S.5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | |
| Carpon Monovide (CO) | mg/m³ | IS 5182 (Part- 10); 2019 (NDIR Method) | <1,0 | 2 (8hrs) | |
| Lead (Pb) | дg/m³ | IS 5182 (Part- 22): 2019 | 0.009 | I (24hrs) | |
| Nickel (Ni) | ng/m³ | 15 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | |
| Arsenic (As) | ng/m | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |

Page 1 of 2

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Website: www.elespl.co.in



TEST REPORT

| Test Report No. | : ELES/RNC/2024/4615 | Report Release Date | : 16.08.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002540F | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------|------------------------------|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Benzene (C ₂ H ₆) | µg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SQP/05: 2023 | < 0.5 | 01(Annual) | |

AKASH KUMAR Quality Manager ELES PVT, LTD.

****End of Report****

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/2024/4616 | Report Release Date | : 16.08.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400002541F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|---|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | ELES/RNC/2024/AA/5295 Near Utkarmit Rajkîya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 07.08.2024 to 08.08.2024 : 09.08.2024 : Ambient Air : ELES/DOC/SMPL/02 |
| Mines Status | : Operational | Sampling Done By | : ELES Pvi. Ltd. |
| Period of Analysis | : 09.08.2024 to 16.08.2024 | Sample Condition | Sealed & Preserved |

| MI | ETEOROLOGICAL INFORMATION | | | |
|----|-------------------------------|---|----------------------------|----------|
| 1 | Average Temperature (°C) : 28 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) : 67 | 4 | Weather Condition | : Cloudy |

| Discipline: | Chemical | Group: Atm | Group: Atmospheric Pollution | | | |
|-------------------------------------|--------------------|---|------------------------------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part- 23): 2022 | 46 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | jig/m ³ | IS 5182 (Part- 24): 2019 | 20 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | µg/m [™] | IS 5182 (Part- II/Sec- 1): 2023 | 6.7 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO2) | μg/m ¹ | IS 5182 (Part- 6); 2022 | 15,3 | 80 (24hrs) | | |
| Ozone (O ₁) | με/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Amntonia (NH ₂) | ng/m) | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | µg/m³ | 15 5182 (Part- 22): 2019 | 0.010 | 1 (24hrs) | | |
| Nickel (NI.) | ng/m³ | JS 5182 (Part- 26); 2020 | <6,0 | 20 (Annual) | | |
| Arsenic (Ax) | ng/m² | ELES/AIR/SOP/01: 2021 | <2.0 | D6 (Annual) | | |

Page I of 2

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



10,1318

TEST REPORT

| Test Report No. | : ELES/RNC/2024/4616 | Report Release Date | : 16.08.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | ; 28.03,2024 |
| ULR No. | ± TC135872400002541E | | |

| Discipline: Chemical | | Group: Atmospheric Pollution | | | |
|--|-------------------|------------------------------|--------|-----------------|--|
| Parameter Unit | | Test Protocol | Result | Regulatory Limi | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m ⁵ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) | |

Reviewed by AKASH KUMAR Quality Managor 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/2024/4742 | Report Release Date | : 22.08.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | ; RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03,2024 |
| ULR No. | : TC135872400002661F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|--|---|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Sampling Date Sample Received Date | : ELES/RNC/2024/DW/5300 : 07.08.2024 : 09.08.2024 | |
| Address | : Lohardaga, Jharkhand-835302 | Type of Sample Source of Sample Location of Sample | : Drinking Water : Tap Water : Mines Site | |
| Mines Status | , Operational | Sampling Procedure | Pakhar Bauxite Mine (109.507ha : ELES/DOC/SMPL/01 | |
| Period of Analysis | 3 09.08.2024 to 17.08.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| Discipline : Chemical | | Group : | Water | | ulatory Limit IS 10500;2012 | |
|--|-------|--|------------------|---------------------|--------------------------------|--|
| Parameter | Unit | Test Protocol | Result | Acceptable Limit | Permissible Limit | |
| pH (at 24.8°C) | 1.00 | APHA 24th Ed.2023, 4500-H | 6.72 | 6.5-8.5 | No Relaxation | |
| Turbidity | NTU | APHA 24th Ed.2023, 2130 B | 0.98 | 1.0 | 5.0 | |
| Taste | - | APHA 24th Ed.2023, 2160 C | Agreeable | Agreeable | Agreeable | |
| Odour | 100 | IS 3025 (Part-5):2018 | Agreeable | Agreeable | Agreeable | |
| Colour | Hazen | APHA 24th Ed.2023, 2120B&D | 2.0 | 5.0 | 15 | |
| Total Dissolved Solids (TDS) | mg/L | APHA 24th Ed.2023, 2540B,C&D | 78 | 500 | 2000 | |
| Chloride (as Cl) | mg/L | APHA 24th Ed.2023, 4500 Cl B | 15.3 | 250 | 1000 | |
| Fluoride (as F) | mg/L | APHA 24th Ed.2023, 4500 F-D | BDL (DL: 0.1) | 1.0 | 1.5 | |
| Total Alkalinity (as CaCO ₃) | mg/L | APHA 24th Ed.2023, 2320 B | 22.1 | 200 | 600 | |
| Total Hardness (as CaCO ₁) | mg/L | APHA 24th Ed.2023, 2340 C | 27.1 | 200 | 600 | |
| Sulphate (as SO ₄) | mg/L | APHA 24th Ed.2023, 4500 SO ₄ -2-E | 3,42 | 200 | 400 | |
| Nitrate (as NO ₂) | mg/L | APHA 24 th Ed.2023, 4500 NO ₃ -B | 1.80 | 45 | No Relaxation | |

Page 1 of 4

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

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TC-13587

TEST REPORT

 Test Report No.
 : ELES/RNC/2024/4742
 Report Release Date
 : 22.08.2024

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

ULR No. : TC135872400002661F

| Discipline: Chemic | al | Gro | Group: Water | | ory Limit 10500:2012 |
|--|------|--------------------------------------|--------------------|---------------------|-------------------------|
| Parameter | Unit | Test Protocol | Result | Acceptable Limit | Permissible Limit |
| Phenolic Compound (as C ₆ H ₈ 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 | 0.49 | 0.2(Min) | 1.0(Min) |
| Calcium (as Ca) | mg/L | APHA 24th Ed.2023, 3500 Ca B | 7.2 | 75 | 200 |
| Anionic Surfactants (as MBAS) | mg/L | APHA 24th Ed.2023, 5540-C | BDL (DL: 0.025) | 0.2 | 1.0 |
| Discipline: Chemic | cal | Gre | oup: Residues i | n 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) | 10.0 | 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 24th Ed.2023; 3111B | BDL (DL: 0.003) | 0.003 | No Relaxation |
| Total Chromium (as Cr) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.03) | 0.05 | No Relaxation |
| Copper (as Cu) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.03) | 0.05 | 1.5 |
| Cyanide (as CN) | mg/L | APHA 24th Ed.2023, 4500 CN-E | BDL (DL: 0.012) | 0.05 | No Relaxation |
| Iron (as Fe) | mg/L | APHA 24th Ed.2023; 3111B | 0.074 | 1.0 | No Refaxation |
| Lead (as Ph) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.01) | 10.01 | No Relaxation |
| Manganese (as Mn) | mg/L | APHA 24 th 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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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA HATIA, RANCHI-R34003 (JHARKHAND) GST NO:-204AECE9713D124

ENGINEERING SERVICES PVT. LTD.

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

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TEST REPORT

 Test Report No.
 : ELES/RNC/2024/4742
 Report Release Date
 : 22.08.2024

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

ULR No. : TC135872400002661F

| Discipline : Chemical | | Group: Resid | lues in Water | | ory Limit 10500:2012 |
|--|-------|--------------------------------------|--------------------|------------|-------------------------|
| Parameter | Unit | Test Protocol | Result | Acceptable | Permissible Limit |
| Zinc (as Zn) | mg/L | APHA 24 th 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 |
| Pesticides | | | | Li | mit |
| Alachior | μg/L, | ELES/GC/SOP/01: 2023 | BDL (DL: 0,5) | - 1 | 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 | |
| Chlorpyriphos | 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) | 1 | 90 |
| 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 |

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

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



CIN: U74999JH2018PTC011125

TEST REPORT

Test Report No. : ELES/RNC/2024/4742 Report Release Date : 22.08.2024

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

ULR No. : TC135872400002661F

| 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) (o,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 | W. H. O.Y. Alv. Co. |
| Escherichia coli (Qualitative) | Per 100 mL | IS 15185: 2021 | Not Detected | Shall not be detected |

Remarks: L. pH and RFC done at Lah.

AKASH KUMAR Quality Manager

ELES PVT. LTD.

****End of Report***

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

Page 4 of 4

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

ENGINEERING SERVICES PVT. LTD.

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

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/4742 | Report Release Date | : 22.08.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 |

| CUSTOMER DET | TAILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|--|---|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Sampling Date Sample Received Date | : ELES/RNC/2024/DW/5300 : 07.08.2024 : 09.08.2024 |
| Address | : Lohardaga, Jharkhand-835302 | Type of Sample Source of Sample Location of Sample | : Drinking Water : Tap Water : Mines Site |
| Mines Status | : Operational | Sampling Procedure | Pakhar Bauxite Mine (109,507ha) : ELES/DOC/SMPL/01 |
| Period of Analysis | : 09.08.2024 to 22.08.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved |

| Discipline : Chemical | | Group: Wa | Group: Water | | ory Limit 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****

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

Page I of 1

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CONTENT

| | Minerals & Minerals: Pakhar (109,507) Environmental Monitoring Report | September 2024 |
|---|---|----------------|
| | Pakhar (109.507) | |
| | AMBIENT AIR QUALITY- CORE ZONE | |
| 1 | Near Mine Quarry No-K7 | |
| 2 | Near Mine Quarry No-K9 | |
| 3 | Near Mine Quarry No-K5 | |
| 4 | Pakhar Loading Area | |
| | AMBIENT AIR QUALITY- BUFFER ZONE | |
| 1 | Near Bunglapart Village | |
| 2 | Yatri Shed (Near K-10) | |
| 3 | Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village | |
| 4 | Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Viliage | |
| | AMBIENT NOISE | |
| | WORKZONE NOISE | |
| | Spring Water | |
| 1 | Dumar Part | |





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

ENGINEERING SERVICES PVT. LTD.

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TC-1356

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5380 | Report Release Date | : 23.09.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400003293F | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|--------------------------------------|--|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. | : ELES/RNC/2024/AA/6214 | |
| | | Location | : Near Mine Quarry No-K7 Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date | : 14.09.2024 to 15.09.2024 | |
| | | Sample Received Date | : 16.09.2024 | |
| | | Type of Sample | : Ambient Air | |
| Mines Status | : Operational | Sampling Procedure | : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFOR | MATION | | | |
|----|--------------------------|--------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | :71 | 4 | Weather Condition | : Rainy |

| Discipline : Chemic | al | Group: Atmospheric Pollution | | | |
|--|-------------------|---|--------|------------------|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part- 23): 2022 | 56 | 100 (24hrs) | |
| Particulate Matter (PM2.5) | μg/m³ | 1S 5182 (Part- 24); 2019 | 28 | 60 (24hrs) | |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part- 2/Sec1): 2023 | 6,7 | 80 (24hrs) | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6): 2022 | 20.2 | 80 (24hrs) | |
| Ozone (O ₃) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | |
| Ammonia (NH ₃) | μg/m² | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | |
| Lead (Pb) | μg/m ² | IS 5182 (Part- 22): 2019 | 0.015 | 1 (24hrs) | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | |
| Benzene (C ₆ H ₆) | µg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) | |

Reviewed by

Juality Manager

****End of Report****

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

Page 1 of 1

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

ENGINEERING SERVICES PVT. LTD.

Website: www.elespl.co.in

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5381 | Report Release Date | : 23.09.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | ; RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400003294F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|--|----------------------|----------------------------------|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. | : ELES/RNC/2024/AA/6215 | |
| | A 14 14 14 14 14 14 14 14 14 14 14 14 14 | Location | : Near Mine Quarry No-K9 | |
| | | | Pakhar (109.507 ha) Bauxite Mine | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date | : 14.09.2024 to 15.09.2024 | |
| | | Sample Received Date | : 16.09.2024 | |
| | | Type of Sample | : Ambient Air | |
| Mines Status | : Operational | Sampling Procedure | : ELES/DOC/SMPL/02 | |
| | | Sampling Done By | : ELES Pvt. Ltd. | |
| Period of Analysis | : 16.09.2024 to 23.09,2024 | Sample Condition | : Sealed & Preserved | |

| MI | ETEOROLOGICAL INFORMATION | | | |
|----|-------------------------------|---|--------------------------|-----------|
| 1 | Average Temperature (°C) ± 26 | 2 | Barometric Pressure (mmF | (g) : 742 |
| 3 | Relative Humidity (%) : 71 | 4 | Weather Condition | Rainy |

| Discipline : Chemic | al | Group: | Group: Atmospheric Pollution | | | |
|--|-------------------|---|------------------------------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | 15 5182 (Part- 23): 2022 | 43 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 21 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- 2/Sec1): 2023 | <5.0 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | IS 5182 (Part- 6); 2022 | 13.9 | 80 (24hrs) | | |
| Ozone (O ₃) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₃) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | 0.012 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | | |
| Benzo-(a)-Pyrene | ng/m ¹ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) | | |

Reviewed by ash Kumai

Quality Manager

****End of Report****

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

Page Lof I

Technical Manager

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



TC-13587

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5382 | Report Release Date | : 23.09.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400003295F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | |
|--------------------|-------------------------------|----------------------|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. | : ELES/RNC/2024/AA/6216 |
| | | Location | : Near Mine Quarry No-K5 Pakhar (109,507 ha) Bauxite Mine |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date | : 14.09.2024 to 15.09.2024 |
| | | Sample Received Date | : 16.09.2024 |
| | | Type of Sample | : Ambient Air |
| Mines Status | : Operational | Sampling Procedure | : ELES/DOC/SMPL/02 |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | Sampling Done By | : ELES Pvt, Ltd. |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | Sample Condition | : Sealed & Preserved |

| M | ETEOROLOGICAL INFORMATION | | | | |
|---|-------------------------------|---|--------------------------|-----------|--|
| I | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mm. | Hg) : 742 | |
| 3 | Relative Humidity (%) :71 | 4 | Weather Condition | : Rainy | |

| Discipline : Chemic | al | Group: | Atmospheric l | Pollution |
|--|-------------------|---|---------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 36 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | JS 5182 (Part- 24): 2019 | 18 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m ³ | IS 5182 (Part- 2/Sec1): 2023 | <5.0 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 12.7 | 80 (24hrs) |
| Ozone (O ₃) | μg/m³ | 1S 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m³ | 1S 5182 (Part- 22): 2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | 1S 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |
| Benzene (C ₆ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) |

Reviewed by Akash Kumar

****End of Report****

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

Page 1 of 1 Technical Manager

The Document stated as Test Report, is assent by the Laboratory under General Terms and Construent, only on Company lesses hand on pre-approved format. The results shown in the Less Report, refer or relates only to the job analysis alone by the Laboratory at the time of involvement only and within the latters of client's insurantees. The Laboratory is responsible for all the information or data provided in the report, except the information which is provided by the client. The Report cannot be reportled except to 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, as retire, med for any legal actions indices prior permission has been extracted from the Management of the Laboratory. Attention is drawn to the limitation of labelity, composition and periodical for Malays from the Date of release issue of the Test Report in unlessed and offenders may be provided in the fullest extern of the law. All the assention are retired for Malays from the Date of release issue of the Test Report The samples from Regulatory bodies are to be retained as specified. Any type of Observations or Complaints, regarding the Report, shall be done within 15-days from the Date of Test Report protested issued. After the time period stated before, no complaints will be accepted. The enter Time webside monitored in Test Report in in 24-hours format. Althresission used. N.A.(Not Applicable), BDL (Below Detection Limit), LDL (Lower Detection Limit).

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

ENGINEERING SERVICES PUT. LTD.

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

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

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5383 | Report Release Date | : 23.09.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | ; 30.03.2024 | |
| ULR No. | : TC135872400003296F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---------------------------------------|--|--|
| Customer Name | : Minerals & Minerals Limited | Sample Ref. No. Location | ; ELES/RNC/2024/AA/6217 ; Pakhar Loading Area | |
| Address | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date | Pakhar (109.507 ha) Bauxite Mine : 14.09.2024 to 15.09.2024 : 16.09.2024 | |
| Mines Status | : Operational | Type of Sample Sampling Procedure | : Ambient Air : ELES/DOC/SMPL/02 | |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| M | ETEOROLOGICAL INFORMATION | | | 00000 | |
|---|-------------------------------|---|--------------------------|-----------|--|
| 1 | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mm) | Hg) : 742 | |
| 3 | Relative Humidity (%) : 71 | 4 | Weather Condition | : Rainy | |

| Discipline : Chemic | al | Group: | Atmospheric l | Pollution |
|--|-------------------|---|---------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23); 2022 | 41 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | 1S 5182 (Part- 24); 2019 | 22 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- 2/Sec1): 2023 | 5,3 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₂) | μg/m³ | IS 5182 (Part- 6): 2022 | 18.7 | 80 (24hrs) |
| Ozone (O ₅) | µg/m³ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | 1S 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m³ | IS 5182 (Part- 22): 2019 | < 0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |
| Benzene (C ₄ H ₆) | μg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m¹ | ELES/GC/SOP/05; 2023 | <0.5 | 01(Annual) |

Reviewed by Akash Kumar Quality Manager

****End of Report****

Drabdagriard Signatury Sinha Ph. D. Environmental Engg.

Page 1 of 1

The Discussest stated as Too Report, to record by the Laboratory under Gimenal Terms and Conditions, only on Company letter bead at pre-approved forms. The results shown in the Test Keport. refire a schain only to the pole analysis done by the Laboratory only. The information stated on the Text Report reflects the findings done by the Laboratory at the risks thrown in the 16st Report reflects the findings done by the Laboratory is the risks thrown to the solution of the 15st the sales and the solution of the 15st the 15st throughout the 15st throughout the 15st thrown the 15st throughout through the 15st throughout through the 15st throughout the 15st throughout throughout the 15st throughout throughout the 15st throughout the 15st throughout throughout throughout throughout through the 15st throughout throughout throughout throughout throughout throughout throughout the 15st throughout through the 15st throughout throughout throughout the 15st throughout through throughout throughout throughout throughout throughout through throughout throughout throughout throughout throughout through the 15st throughout through the 15st throughout throu succes. Any unauthorized alternation & foliallication 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 systems for 30days from the Date of palessations of the Test Report. The samples from Regulatory Bodies are to be retained as specified. Any type of Observations or Complaints regarding the Reports shall be dear within 15days from the Date of Test Report released/instead. After the time period stated before, my complaints will be accorded. The stress Time schedule mentioned in Test Report is at 14theras format. Abbreviation sand: N.A.(Not Applicable), BDL (Below Detection Limit), LDL (Lower Detection Limit).



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TEST REPORT

| Test Report No. | : ELES/RNC/2024/5339 | Report Release Date | : 23,09,2024 | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Work Order Date | : 28.03.2024 | |
| ULR No. | : TC135872400003252F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | SAMPLE DETAILS | | |
|--------------------|-------------------------------|---|---|--|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/6173 : Near Bunglapart Village Pakhar Bauxite Mine | | |
| Address | ; Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample | : 12.09,2024 to 13:09,2024 : 16.09,2024 : Ambient Air | | |
| Mines Status | : Operational | Sampling Procedure | ELES/DOC/SMPL/02 | | |
| Period of Analysis | 16.09.2024 to 23.09.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | | |

| M | ETEOROLOGICAL INFORMATION | | | | |
|---|-------------------------------|----|---------------------------|---------|--|
| 1 | Average Temperature (*C) : 26 | -2 | Barometric Pressure (mmHg | 740 | |
| 3 | Relative Humidity (%) : 72 | 4 | Weather Condition | : Rainy | |

| Discipline: Chemie | cal | Group: | Atmospheric | Pollution |
|--|-------------------|---|-------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | µg/m³ | IS 5182 (Part- 23): 2022 | 42 | 100 (24hrs) |
| Particulate Matter (PM2.5) | µg/m³ | IS 5182 (Part- 24): 2019 | 19 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | (S 5182 (Part- 2/Sec1): 2023 | 5.5 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO2) | μg/m³ | IS 5182 (Part- 6): 2022 | 16.3 | 80 (24hrs) |
| Ozone (O ₃) | μg/m ⁵ | IS 5182 (Part- 9); 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m ³ | IS 5182 (Part- 22): 2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |
| Benzene (C ₆ H ₆) | µg/m² | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05; 2023 | <0.5 | 01(Annual) |

Reviewed by Mash Kumul Quality Manager

****End of Report****

Dr. Deependrh Kerner Sinha Ph. D. Environmental Engg.

Technical Manager

Page I of I

The Discount stored at Test Report, is counted by the Laboratory limiter Companies and Company letter head on pre-approved format. The counter is the Yeat Report refer to company to the job lendary at the core of involvement only one besides of the Laboratory at the core of involvement only and within the lendar of interpretation. The Laboratory of responsible for all the discretion of the provided by the climater of the Laboratory of the L



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TEST REPORT

| Test Report No. | : ELES/RNC/2024/5340 | Report Release Date | : 23.09.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13611312113 | Work Order Date | : 28.03.2024 |
| ULR No. | : TC135872400003253F | | |

| CUSTOMER DET | | SAMPLE DETAILS | |
|--------------------|-------------------------------|---|--|
| Customer Name | . Hindaico Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/6174 : Ystri Shed (Near X-10) Pakhar Bauxite Mine |
| Address | : Lohardaga, Jhurkhand-835302 | Sampling Date Sample Received Date Type of Sample | 12.09.2024 to 13.09.2024 16.09.2024 Ambient Alir |
| Mines Status | : Operational | Sampling Procedure | ELES/DOC/SMPL/02 |
| Period of Analysis | : 16.09.2024 to 25.09.2024 | Sampling Done By Sample Condition | ELES Pvt. Ltd. |

| MI | ETEOROLOGICAL INFOR | MATION | | | | |
|----|--------------------------|--------|---|----------------------------|---------|--|
| 1 | Average Temperature (°C) | = 26 | 2 | Barometric Pressure (mmHg) | ±740 | |
| 3 | Relative Humidity (%) | = 72 | 4 | Weather Condition | : Rainy | |

| | | 1 | | |
|--|-------------------|---|-------------|------------------|
| Discipline : Chemle | cal | Group: | Atmospheric | Pollution |
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 43 | 100 (24hrs) |
| Particulate Matter (PM2.5) | hā/m3 | IS 5182 (Part- 24): 2019 | 20 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- 2/Sec1): 2023 | <5.0 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO ₁) | μg/m³ | IS 5182 (Part- 6): 2022 | 14,8 | 80 (24hrs) |
| Ozone (O ₃) | µg/m ¹ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₅) | μg/m³ | IS 5182 (Part- 25); 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m ² | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | μg/m² | IS 5182 (Part- 22): 2019 | < 0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m³ | 1S 5182 (Part- 26); 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |
| Benzene (C _s H _s) | µg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | <0.5 | 01(Annual) |

Reviewed by Akash Kumar Quality Visusall

****End of Report****

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

Page I of I

Technical Manager

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TEST REPORT

| Test Report No. | : ELES/RNC/2024/5341 | Report Release Date | : 13.09.2024 | |
|-----------------|----------------------|---------------------|--------------|--|
| Work Order No. | : 13612312113 | Worlt Order Date | : 28.03.2024 | |
| ULR No. | : TC135872400003254F | | | |

| CUSTOMER DET | ALLS | SAMPLE DETAILS | |
|----------------------|--------------------------------|--|--|
| Customer Name | ; Hindaico Industries Elimited | Sample Ref. No. Location | : ELES/RNC/2024/AA/6175 : Near Utkarmit Rajkiya Prathmik Vidyalaya Bunglapart Village Pakhar Bauxite Mine |
| Address Mines Status | : Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 12.09,2024 to 13.09,2024 : 16.09,2024 : Ambient Air : ELES/DOC/SMPL/02 |
| | | Sampling Done By | " ELES Pvt. Ltd. |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | Sample Condition | ; Sealed & Preserved |

| MI | ETEOROLOGICAL INFOR | MATION | | | | |
|----|--------------------------|--------|---|--------------------------|-----------|--|
| .1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mml | Ig) : 740 | |
| | Relative Humidity (%) | : 72 | 4 | Weather Condition | : Rainy | |

| Discipline: Chemic | in! | Group: | Atmospheric | Pollution |
|--|--------------------|---|-------------|------------------|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
| Particulate Matter (PM10) | jug/m ³ | IS 5182 (Part- 23); 2022 | 40 | 100 (24hrs) |
| Particulate Matter (PM2.5) | μg/m³ | IS 5182 (Part- 24): 2019 | 18 | 60 (24hrs) |
| Sulphur Di-Oxide (SO ₂) | µg/m³ | IS 5182 (Part- 2/Sec1): 2023 | 5.1 | 80 (24hrs) |
| Nitrogen Di-Oxide (NO2) | μg/m³ | 1S 5182 (Part- 6): 2022 | 14.5 | 80 (24hrs) |
| Ozone (O _y) | μg/m ¹ | IS 5182 (Part- 9): 2019 | <20.0 | 100 (8hrs) |
| Ammonia (NH ₃) | μg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) |
| Carbon Monoxide (CO) | mg/m³ | 1S 5182 (Part- 10); 2019 (NDIR Method) | <1.0 | 2 (8hrs) |
| Lead (Pb) | µg/m³ | IS 5182 (Part- 22): 2019 | <0.002 | 1 (24hrs) |
| Nickel (Ni) | ng/m) | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) |
| Benzene (C ₆ H ₆) | µg/m³ | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05; 2023 | < 0.5 | 01(Annual) |

Reviewed by

****End of Report****

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Akash Kumut Quality Manager

Page 1 of 1

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TEST REPORT

| Test Report No. | : ELES/RNC/2024/5342 | Report Release Date | : 23.09.2024 |
|-----------------|----------------------|---------------------|--------------|
| Work Order No. | : 13612312113 | Work Order Date | : 28,03,2024 |
| ULR No. | : TC135872400003255F | | |

| CUSTOMER DET | CUSTOMER DETAILS | | | |
|--------------------|--------------------------------|---|---|--|
| Costomer Name | : Hindalco Industries Limited | Sample Ref. No. Location | : ELES/RNC/2024/AA/6176 : Near Utkarmit Rajkiya Prathmik Vidyalaya Dumrapart Village Pakhar Bauxite Mine | |
| Address | :: Lohardaga, Jharkhand-835302 | Sampling Date Sample Received Date Type of Sample Sampling Procedure | : 12.09.2024 to 13.09;2024 : 16.09.2024 : Amblent Air : ELES/DOC/SMPL/02 | |
| Mines Status | :: Operational | Sampling Done By | ELES Pvt. Ltd. | |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | 4 to 23:09:2024 Sample Condition | : Sealed & Preserved | |

| Mi | ETEOROLOGICAL INFORMATION | | | | |
|----|-------------------------------|---|-------------------------|-----------|--|
| 1 | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mm | Hg) : 740 | |
| 3 | Relative Humidity (%) : 72 | 4 | Weather Condition | : Rainy | |

| Discipline: Chemic | cal | Group: Atmospheric Pollution | | | | |
|--|-------|---|--------|------------------|--|--|
| Parameter | Unit | Test Protocol | Result | Regulatory Limit | | |
| Particulate Matter (PM10) | μg/m³ | IS 5182 (Part- 23): 2022 | 44 | 100 (24hrs) | | |
| Particulate Matter (PM2.5) | µg/m³ | IS 5182 (Part- 24): 2019 | 28 | 60 (24hrs) | | |
| Sulphur Di-Oxide (SO ₂) | μg/m³ | IS 5182 (Part- 2/Sec1); 2023 | 5,3 | 80 (24hrs) | | |
| Nitrogen Di-Oxide (NO ₂) | µg/m³ | 1S 5182 (Part- 6): 2022 | 13.9 | 80 (24hrs) | | |
| Ozone (O ₁) | µg/m³ | IS 5182 (Part- 9); 2019 | <20.0 | 100 (8hrs) | | |
| Ammonia (NH ₃) | µg/m³ | IS 5182 (Part- 25): 2018 | <10.0 | 400 (24hrs) | | |
| Carbon Monoxide (CO) | mg/m³ | IS 5182 (Part- 10): 2019 (NDIR Method) | <1.0 | 2 (8hrs) | | |
| Lead (Pb) | μg/m² | IS 5182 (Part- 22): 2019 | 0.005 | 1 (24hrs) | | |
| Nickel (Ni) | ng/m³ | IS 5182 (Part- 26): 2020 | <6.0 | 20 (Annual) | | |
| Arsenic (As) | ng/m³ | ELES/AIR/SOP/01: 2021 | <2.0 | 06 (Annual) | | |
| Benzene (C ₄ H ₆) | µg/m² | ELES/GC/SOP/06: 2023 | <2.5 | 05(Annual) | | |
| Benzo-(a)-Pyrene | ng/m³ | ELES/GC/SOP/05: 2023 | < 0.5 | 01(Annual) | | |

Reviewed by

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****End of Report****

Dr. Deependra Kumar Sinha

Ph. D. Environmental Engg.

Page 1 of 1

Page 1 of 1
The Discontinuous latest of Text Report, in annual by the Laboratory under General Years and Conditions, their on Company latest and a Text Report in annual by the Laboratory and or Text Report refer to relate early to the job analysis about the the Laboratory and The adjustment made on the Text Report reflects the General to be adjusted by the Laboratory at the latest of the order of the following and the financial resource of the following at the financial resource of the following and the closer. The Expensions has been approximately except the inflammation which is provided by the closer. The Expensions be reported by the financial resource of the published. above a post for my legal actions cannot be been assured to the Section of the Laboratory. Alterdam is discuss to the lambour of highlity, compensation of a substitution of the post of the Laboratory. Alterdam is given to the lambour of the lambour of the post of the lambour of lambo



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

ENGINEERING SERVICES PVT. LTD.

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

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



TC-1368

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5386 | Report Release Date | : 23.09.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400003299F | | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | | |
|--------------------------|--|---|---|--|
| Customer Name Address | : Minerals & Minerals Limited : Lohardaga, Jharkhand-835302 | Sampling Date Sampling Received Date Type of Sample Sampling procedure Sampling Done By | : 14.09.2024 to 15.09.2024 : 16.09.2024 : Ambient Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd. | |
| Mines Status | : Operational | Period of Analysis | : 16.09.2024 to 23.09.2024 | |

| M | ETEOROLOGICAL INFO | RMATION | | | |
|---|--------------------------|---------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | ; 742 |
| 3 | Relative Humidity (%) | :71 | 4 | Weather Condition | ; Rainy |

| Discipline : Chemical | Pollution | | | | |
|--|-----------|---------------|------------|-----|---------------------------------------|
| Location | Unit | Test Protocol | Rest | ilt | Regulatory Limit (Industrial Zone) |
| we consider the same | | | Time | Leq | |
| Near Mine Quarry No-K7 Pakhar Bauxite Mine (109,507 ha) | dB(A) | IS 9989: 2020 | Day Time | 57 | 75 dB(A) Day Time & |
| Sample ID: ELES/RNC/2024/AN/6220 | dB(A) | | Night Time | 45 | 70 dB(A) Night Time |



****End of Report****

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

Page 1 of 1

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

ENGINEERING SERVICES PVT. LTD.

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

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



TC-13587

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5389 | Report Release Date | : 23.09.2024 |
|-----------------|------------------------|---------------------|--------------|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 |
| ULR No. | : TC135872400003302F | | |

| CUSTOMER DE | TAILS | SAMPLE DETAILS | | |
|---------------|-------------------------------|---|--|--|
| Customer Name | : Minerals & Minerals Limited | Sampling Date Sampling Received Date | : 15.09.2024 : 16.09.2024 | |
| Address | : Lohardaga, Jharkhand-835302 | Type of Sample Sampling procedure Sample Drawn By | : Workzone Noise : ELES/DOC/SMPL/03 : ELES Pvt. Ltd. | |
| Mines Status | : Operational | Period of Analysis | : 16.09.2024 to 23.09.2024 | |

| M | ETEOROLOGICAL INFO | RMATION | | | |
|---|--------------------------|---------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Rainy |

| Location | Unit | Test Protocol | Res | ult | Regulatory Limit (Industrial Zone) |
|-------------------------------------|-------|---------------|----------|-----|---------------------------------------|
| Loading Point Near Dumper - | | | Time | Leq | |
| Pakhar Bauxite Mines (109.507 ha.) | dB(A) | IS 4758: 2017 | Day Time | 75 | 90 dB (A) |
| Sample ID: ELES/RNC/2024/WN/6223 | | | | | |



****End of Report***

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

Page 1 of 1

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

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

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



TC-13887

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5372 | Report Release Date | : 23.09.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |
| ULR No. | : TC135872400003285F | | | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------|--|---|--|--|
| Address | : Minerals & Minerals Limited : Lohardaga, Jharkhand-835302 | Sample Ref. No. Sampling Date Sample Received Date Type of Sample Source of Sample Location of Sample | : ELES/RNC/2024/SW/6206 : 15.09.2024 : 16.09.2024 : Surface Water : Spring Water : Dumarpart, Pakhar Bauxite Mine (109.507 ha) | |
| Mines Status | : Operational | Sampling Procedure | : ELES/DOC/SMPL/01 | |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | Sampling Done By Sample Condition | ELES Pvt. Ltd. | |

| Discipline : Chemical | | G | roup: Water | Tolerance Limits |
|--|-------|--|------------------|---|
| Parameter | Unit | Test Protocol | Result | as per IS 2296-1992 Class C (Inland Surface Water |
| pH (at 24.8 °C) | 17 | 1S 3025 (Part-11): 2022 | 6.77 | 6.5-8.5 |
| Colour | Hazen | IS 3025 (Part -4): 2021 | 7.0 | 300 |
| Odour | | IS 3025 (Part-5): 2018 | Unobjectionable | - |
| Turbidity | NTU | IS 3025 (Part-10): 2023 | 0.78 | 1-4 |
| Total Dissolved Solids (TDS) | mg/L | IS 3025 (Part-16): 2023 | 55 | 1500 |
| Total Alkalinity (as CaCO ₃) | mg/L | IS 3025 (Part-23): 2023 | 13.0 | - |
| Total Hardness (as CaCO ₁) | mg/L | IS 3025 (Part-21): 2019 | 21.3 | - |
| Sulphate (as SO ₄) | mg/L | IS 3025 (Part-24/Sec1): 2022 | 7,42 | 400 |
| Chloride (as Cl) | mg/L | IS 3025 (Part-32): 2019 | 9.7 | 600 |
| Fluoride (as F) | mg/L | IS 3025 (Part-60): 2019 | BDL (DL: 0.1) | 1,5 |
| Nitrate (as NO ₃) | mg/L | APHA 24th Ed.2023, 4500 NO ₁ -B | 0.72 | 50 |

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



TEST REPORT

Test Report No. : ELES/RNC/2024/5372 Report Release Date : 23.09.2024
Work Order No. : RP/MJB/MM/24/0088/01 Work Order Date : 30.03.2024

ULR No. : TC135872400003285F

| Discipline : Chemical | | Group: Wa | ter | Tolerance Limits |
|--|-------|--------------------------------------|--------------------|--|
| Parameter | Unit | Test Protocol | Result | as per IS 2296-1992 Class C (Inland Surface Water) |
| Free Residual Chlorine (RFC) | mg/L | 1S 3025 (Part-26): 2021 | BDL (DL: 0.1) | |
| Phenols Compounds (as C _a H ₅ 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 | 5.4 | |
| Discipline : Cher | nical | Gre | oup: Residues | in Water |
| Aluminum (as Al) | mg/L | 1S 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) | 10-5 |
| Cadmium (as Cd) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.003) | 0.01 |
| Total Chromium (as Cr) | mg/L | APHA 24th Ed.2023; 3111B | BDL (DL: 0.03) | 0.05 |
| Copper (as Cu) | mg/L | APHA 24 th Ed.2023; 3111B | BDL (DL: 0.03) | 1.5 |
| Iron (as Fe) | mg/L | APHA 24 [®] Ed.2023; 3111B | 0.115 | 50 |
| Lead (as Pb) | mg/L | APHA 24 th Ed.2023; 3111B | BDL (DL: 0.01) | 0.1 |
| Manganese (as Mn) | mg/L | APHA 24th 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 24th Ed.2023; 3111B | BDL (DL: 0.1) | 15 |

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TEST REPORT

Test Report No. : ELES/RNC/2024/5372 Report Release Date : 23.09.2024

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

ULR No. : TC135872400003285F

| Discipline : Che | mical | Group: Res | Tolerance Limits | |
|--|--|----------------------|-------------------|--|
| Parameter Unit | | Test Protocol | Result | as per IS 2296-1992 Class C (Inland Surface Water) |
| Cyanide (as CN) | as CN) mg/L APHA 24th 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) | |
| Pesticides | | | | |
| 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) | (H) |
| Chlorpyriphos | µg/L | ELES/GC/SOP/01: 2023 | BDL (DL: 0.5) | ÷ |
| Ethion | μg/L | ELES/GC/SOP/01: 2023 | BDL (DL: 0.5) | 100 |
| Malathion | µg/L | ELES/GC/SOP/01: 2023 | BDL (DL: 0.5) | 141 |
| 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) | 100 |

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TEST REPORT

Test Report No. : ELES/RNC/2024/5372 Report Release Date : 23.09.2024

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

ULR No. : TC135872400003285F

| 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) | - 0 | |
| Delta HCH | μg/L | ELES/GC/SOP/02: 2023 | BDL (DL: 0.02) | (4) | |
| Gamma HCH (Lindane) | μg/L | ELES/GC/SOP/02: 2023 | BDL (DL: 0.02) | 75 | |
| Endosulfan (alpha, beta and sulphate) | µg/L | ELES/GC/SOP/02; 2023 | BDL (DL: 0.05) | 4-1 | |
| DDT(o,p and p,p-isomers of DDT) (DDE and DDD) | ng/L | ELES/GC/SOP/02; 2023 | BDL (DL: 0.05) | 4 | |
| Discipline: Biolo | ogical | Gre | oup: Water | | |
| Total Coliform | CFU/100 mL | IS 15185: 2021 | 2.68×10 ² | | |
| Escherichia coli | CFU/100 mL | 15 15185: 2021 | 24.0 | - 4 | |

Remarks: pH & RFC done at Lab.

Reviewed by

****End of Report***

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

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Website : www.elespl.co.in

TEST REPORT

| Test Report No. | : ELES/RNC/2024/5372 | Report Release Date | : 23.09.2024 | |
|-----------------|------------------------|---------------------|--------------|--|
| Work Order No. | : RP/MJB/MM/24/0088/01 | Work Order Date | : 30.03.2024 | |

| CUSTOMER DET | AILS | SAMPLE DETAILS | | |
|--------------------------|--|---|---|--|
| Customer Name Address | : Minerals & Minerals Limited : Lohardaga, Jharkhand-835302 | Sample Ref. No. Sampling Date Sample Received Date Type of Sample Source of Sample Location of Sample | : ELES/RNC/2024/SW/6206 : 15.09.2024 : 16.09.2024 : Surface Water : Spring Water : Dumarpart, Pakhar Bauxite | |
| Mines Status | : Operational | Sampling Procedure | Mine (109.507 ha) ELES/DOC/SMPL/01 | |
| Period of Analysis | : 16.09.2024 to 23.09.2024 | Sampling Done By Sample Condition | : ELES Pvt. Ltd. : Sealed & Preserved | |

| Discipline: Chemic | al | up: Water | Tolerance Limits | |
|----------------------------------|------|--|--------------------|--|
| Parameter | Unit | Test Protocol | Result | as per IS 2296-1992 Class C (Inland Surface Water) |
| Taste | (4) | APHA 24th Ed.2023, 2160C | N/A | |
| Anionic Surfactants (as MBAS) | mg/L | APHA 24th Ed.2023, 5540-C | BDL (DL; 0.025) | 1.0 |
| Mineral Oil* | mg/L | 1S 3025 (Part-39):2021 (Clause 6 Infrared Spectroscopic Method) | BDL (DL: 0.01) | 7 |

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

Reviewed by

****End of Report****

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

Page 1 of 1

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MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302 Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

| Ref. : | Date |
|--------|------|

Annexure 3

Date: - 22.11.2024

Office Order

Environmental Cell has been re-constituted at Pakhar Bauxite Mine (Area 109.507 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 Limited.

- 1. Mr. Chet Kamat (Coordinator)
- 2. Mr. Tapas Kumar Gachhayat (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

| | Production, Mined Out, Back Filled and Over Burden removal from April'24 to September'24 | | | | | | | |
|---------|--|------------------------------|---------------------------------|-----------------------------|--------------------|---------------------------|--------------------------|--------------------------|
| S No | Name of the Mines | Mining lease area (ha) | Production Capacity (MT)* | Lease Period* | Production (MT) | Mined out area (ha) | Back filled area (ha) | Over burden (Cu.M) |
| 1 | Bagru Bauxite Mine | 75.41 | 85000 | 22.01.1974 to 31.03.2030 | NIL | NIL | NIL | NIL |
| 2 | Bhusar Bauxite Mine | 65.31 | 280000 | 11.07.1981 to 31.03.2030 | 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 |

| | Minerals & Minerals Limited | | | | | | | |
|----|-----------------------------------|---------|--------|-----------------------------|-----------|------|------|------------|
| 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 Cangopadhyay
AVP (Planning, Environment and Compliance)

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.

| S No | Description | Budget (in Rupees) FY 2024-25 (From Apr'24 to Sep'24) | Actual (in Rupees) FY 2024-25 (From Apr'24 to Sep'24) |
|------|---|---|---|
| 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)