

MINERALS & MINERALS LIMITED

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

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. :

Date

M&M/LHD/ENV/MoEF/76

Date: 24.05.2021

To,

The Additional Principal Chief Conservator of Forest (C)
Ministry of Environment, Forests and Climate Changes
Regional Office (ECZ), Ranchi-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 October'20 to March'21.

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 October'20 to March'21.

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)

GM (Geology & Environment)

Enclosure: - As Above

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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 October 2020 to 31st March 2021

S No	Conditions	Compliance Status
Specific Conditions		
1	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.	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.
2	The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.	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 (Land Owner) for 20 years with 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.
3	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.	Working zone is being restricted to above ground water table It is not intersecting ground water table during mining operation. We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.
4	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	No natural watercourse has been obstructed. Adequate precaution is being taken to protect water bodies including seasonal channels while mining operations.

	mine lease, during the course of mining operation.	
5	The top soil 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.	Sequential backfilling and reclamation of mined out area are being implemented during mining operation. Topsoil is being used to reclaim and restore the backfilled area up to the extent possible. Top soil is being stored at earmarked site temporarily with the progress of mining activity as applicable.
6	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 Bhubaneswar on six monthly basis.	Sequential backfilling and reclamation of mined out area are being practiced. Backfill data is enclosed as Annexure 4. Monitoring and management of rehabilitated areas is continuing until vegetation becomes self-sustaining through supervision. Old small OB dump (approx. 4 meter) is stabilized and grass sowing activity is completed.
7.	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.	Implementation of condition is in progress. Mining is being carried out in a scientific manner. Rainwater harvesting pond of 1.26 ha has been provided. Fencing provided.

8	<p>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.</p> <p>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.</p>	<p>No run-off is generated from mining activities. However, 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.</p> <p>Catch drains, Garland drains of appropriate size have been constructed both around the mine pit to prevent run off of water and flow of sediments directly into the agricultural field and water bodies.</p> <p>Sump of adequate capacity is being provided and maintained as required.</p>
9	<p>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.</p>	<p>The dimension of the retaining wall of OB dumps is based on the average rainfall.</p>
10	<p>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.</p>	<p>Progressive plantation is being carried out in consultation with local forest department. Total 1.07 ha has covered with plantation during April'20 to March'21. Green belt development programme is in progress with progress of mining activities. Nos of sapling planted during 2020-21 period is 2270 nos. Total 7.62 ha areas has been planted till date. In addition to this agricultural activities is going on reclaimed land.</p>
11	<p>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</p>	<p>Water tankers have been provided for sprinkling of water on haul roads and are being engaged at the places where active mining is in progress to arrest fugitive dust emission.</p> <p>AAQ parameters are being regularly</p>

	Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	monitored. Report is enclosed as Annexure 1.
12	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.	Spring is being monitored, Report is attached as Annexure 1.
13	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.	Implementation of suitable conservation measures to augment ground water resources in the area viz Rainwater harvesting pond, garland drain and non-use of ground water etc. are implemented.
14	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 – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in each season)] shall be carried out in consultation with the State Ground Water Board/ Central Ground water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional office 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.	Working zone is being restricted to above ground water table. There is no chance to intersect ground water table during mining operation present and in future. Piezometer has been installed for monitoring of ground water level. Water quality and level report are attached herewith as Annexure 1.
15	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.	No natural watercourse has been obstructed.
16.	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.	Water is being drawn from water harvesting pond. No Natural spring is being used for mining purposes. No Objection Certificate (NOC) for ground water abstraction for Pakhar (109.507 ha) mines has been obtained for drinking purpose only.
17.	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Suitable rainwater harvesting such as rain water harvesting pond, garland drain and non-use of ground water etc being implemented with the progress of mining.

18	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.	Regular maintenance of vehicles are undertaken to minimize vehicular emission. All the transporters have been instructed to obtain PUC for their vehicles from competent authority and submit to the concerned officer for verification. Vehicles are having PUC and emissions are under control.
19	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.	Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. All efforts are being taken to mitigate impact of blasting.
20	Drills shall either be operated with dust extractors or equipped with water injection system.	Wet drilling is in practice.
21	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.	Water sprinkling is being carried out regularly at loading, unloading and mineral handling areas.
22	Sewage treatment plant should be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operations.	The sewage water from domestic uses is being collected through individual Septic Tank and Soak Pits. Effluent treatment mechanism (Oil-grease trap) are installed at suitable site in Pakhar plateau.
23	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.	This is being done on continuous basis through medical camp and CSR activity.
24	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.	System is already in place.
25.	The land Oustees and land losers/ affected people shall be compensated/ rehabilitation as per the National Policy of Resettlement and Rehabilitation of project Affected Families (NPRR)	Land acquisition activities is done as per CNT Act and with permission of competent authority i.e. concerned Deputy Commissioner (D.C.) with lease agreement Raiyat (Land Owner) for 20 years period and the land will be returned

		so acquired as per the norms set by D.C. in land purchased agreement. The compensation and rehabilitation benefit is also being provided through this agreement as per norms set in agreement.
26.	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.	Company's CSR team is doing regular assessment of the family based need of the tribals and it appropriately addressed.
27.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of the temporary structures to be removed after the completion of the project.	Necessary infrastructure is already in place.
28.	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 measures 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.	<p>Suitable precautionary measures during mining operation are being implemented for conservation and protection of endangered flora and fauna.</p> <p>Action taken for conservation of flora and fauna as under:</p> <ol style="list-style-type: none"> 1) Permanent pillars are established within the mine lease area. 2) Maintenance of the forest road 3) Ensured necessary air and noise pollution control measures. 4) Daily water sprinkling is being carried out on the forest road 5) Transportation is being done during daytime. 6) Patrolling is being done.
27	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	<p>Complied Monitoring Reports is enclosed as Annexure-1.</p> <p>Presently, there is no discharge of water from the mines. In case of discharge monitoring will be ensured.</p>

	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.	
28	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.	Progressive Mine Closure Plan duly approved by Indian Bureau of Mines. FMCP related provision will be compiled as per statue. Based on the present resource estimate, and peak rated production capacity mentioned in EC, the tentative balance life is around 10 years. However, based on further availability of geological data with progress of mining in future, resources estimate vis-à-vis EC capacity and cut-off grade at that point of time ,balance life of the mine may change based on final resource estimate,

General Conditions

S No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Noted.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining plan scheme. Report is attached herewith as Annexure 4.
3	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}) & NO_x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	We have already established four ambient air quality monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as Annexure 1.
4	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	Monitoring Reports is enclosed as Annexure-1.

	six months.	
5	Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water tankers have been provided for sprinkling of water on haul roads and are generally being engaged at the places where active mining is in progress to contain fugitive dust.
6	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.	Noise monitoring is being carried out at various locations of the work zone area and a monitoring report for the period of reporting six monthly compliance is enclosed. Workers engaged in operation of HEMMs, etc have also been provided with PPEs such as ear plug and ear muffs.
7	Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May, 1993 and 31 st December,1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no industrial waste water generated from workshop within mine lease area. We are not discharging any wastewater outside mine lease area. Oil and grease trap installed at Pakhar plateau at suitable site.
8	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.	Complied. Use of Personal Protective Equipment (PPE) by the individuals is being ensured. Mine workers are being regularly and periodically sent to our own hospital for health checkup for any contraction of diseases due to exposure in dusty and noisy areas. Training on safety, health and environmental aspects of mining is being regularly imparted through VT centre and also through various other training programmes conducted by the State Government, recognized agencies, etc.
9	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as Annexure-3.
10	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	Statement of budgetary provision and actual expenses for environmental protection measure is enclosed as Annexure-2.

11	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.	This as an operational mine, hence this provision is not applicable. Currently, the Regional Office is located at Ranchi.
12	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.	Agreed. Currently, the Regional Office is located at Ranchi.
13	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.	Duly submitted. Currently, the Regional Office is located at Ranchi.
14	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.	Complied.
15	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.	Displayed.
16	The environmental statement for each financial year ending 31 st 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	Submitted. Currently, the Regional Office is located at Ranchi.

	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.	
17	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.	Complied. (Documents already submitted). Currently, the Regional Office is located at Ranchi.


Signature

Photographs of Pakhar-109.507 ha Mine



(Plantation in Reclaimed areas)



(Plantation in Reclaimed areas)



(Photographs of washing ramp and Oil and Grease Trap)



(Photographs of reclaimed area)



(Photographs of covered truck)



(Photograph of water harvesting pond)



Eco Ventures Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
District – Ranchi 834009

M. & M. Ltd. – PAKHAR (109.507) – ENVIRONMENTAL MONITORING REPORT

OCTOBER 2020

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

CONTENT

	LOCATION – PAKHAR (109.507)
	AMBIENT AIR QUALITY – CORE ZONE
1	Near Mine Quarry No. – K 7
2	Near Mine Quarry No. – K 9
3	Near Mine Quarry No. – K 10
4	Pakhar Loading Area
	AMBIENT NOISE
	SPOT NOISE
	SPRING WATER QUALITY
	DRINKING WATER ANALYSIS





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0471/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 7	
Sample collected on: 10.10.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 7				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	81
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	47
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	5.6
06.	Ozone (O ₃)	µg/m ³	180	9.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.43
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	ng/m ³	20	2.5
10.	Arsenic (As)	ng/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0472/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 9	
Sample collected on: 10.10.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 9				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	78
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.0
05.	Ammonia (NH ₃)	µg/m ³	400	6.4
06.	Ozone (O ₃)	µg/m ³	180	8.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.45
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.7
10.	Arsenic (As)	ng/m ³	06	1.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.33

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0473/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 10	
Sample collected on: 10.10.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 10				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	86
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	42
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.5
06.	Ozone (O ₃)	µg/m ³	180	9.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.34
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	2.2
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0474/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Pakhar Loading Area	
Sample collected on: 10.10.2020	

LOCATION / IDENTIFICATION: Pakhar Loading Area				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	89
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	42
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.7
05.	Ammonia (NH ₃)	µg/m ³	400	5.9
06.	Ozone (O ₃)	µg/m ³	180	10.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.38
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	2.3
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0475/2020-21	Date: 30 th November, 2020
Sample described by customer: Measurement of Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 10.10.2020	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Pakhar (109.507) Near Office	dB (A) L _{eq}	75	63.0	70	56.9

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0476/2020-21	Date: 30 th November, 2020
Sample described by customer: Measurement of Spot Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 10.10.2020	

Location/Identification	Unit	Limit (day)	Result
Pakhar (109.507) Loading Point Near Dumper	dB (A) L _{eq}	75	70.5

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0477/2020-21	Date: 30 th November, 2020
Sample described by customer : SPRING WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: SPRING WATER	
Marks on Sample: Location: Pakhar (15.58)	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 10.10.2020	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.31	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	392	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	35	200 max	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	41	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	33	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
11	Sulphate (as SO ₄)	mg/l	28.5	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.21	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.6	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Continuation Sheet
MEEPL/NOV/0477/2020-21

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.13	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.5	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.07	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7-8	APHA 20 th ED. Method 4500-o g.

Conclusion: The Physical & Chemical Analysis report indicates that water is not contaminated.

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0478/2020-21	Date: 30 th November, 2020
Sample described by customer : DRINKING WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER	
Marks on Sample: Location: PAKHAR (109.507) – DRINKING WATER	
Sample collected on: 10.10.2020	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.2	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	141	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	30.5	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	26.2	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	5.8	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	4.3	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Continuation Sheet MEEPL/NOV/0478/2020-21

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO ₃)	mg/l	1.5	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.14	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.10	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	27	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.8	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.15	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S ₂ -C 4-175 & F 4-178





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

Continuation Sheet
MEEPL/NOV/0478/2020-21

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9-76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Conclusion: The Physical & Chemical Analysis report indicates that water is not contaminated.

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0454/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Bunglapart Village	
Sample collected on: 08.10.2020	

LOCATION / IDENTIFICATION: Near Bunglapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	53
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	8.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	ng/m ³	20	2.2
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0455/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village	
Sample collected on: 08.10.2020	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.4
05.	Ammonia (NH ₃)	µg/m ³	400	2.1
06.	Ozone (O ₃)	µg/m ³	180	7.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.30
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.32

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0456/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village	
Sample collected on: 08.10.2020	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	52
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.2
05.	Ammonia (NH ₃)	µg/m ³	400	3.5
06.	Ozone (O ₃)	µg/m ³	180	8.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	2.4
10.	Arsenic (As)	ng/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0457/2020-21	Date: 30 th November, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Yatri Shed (Near K 10)	
Sample collected on: 08.10.2020	

LOCATION / IDENTIFICATION: Yatri Shed (Near K 10)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	64
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	4.2
06.	Ozone (O ₃)	µg/m ³	180	8.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
District – Ranchi 834009

PAKHAR (109.507) – ENVIRONMENTAL MONITORING REPORT

NOVEMBER 2020

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries: Pakhar (109.507)

Environmental Monitoring Report

NOVEMBER 2020

CONTENT

LOCATION – PAKHAR (109.507)	
	AMBIENT AIR QUALITY – CORE ZONE
1	Near Mine Quarry No. – K 7
2	Near Mine Quarry No. – K 9
3	Near Mine Quarry No. – K 10
4	Pakhar Loading Area





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Hindalco Industries: Pakhar (109.507)

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0438/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 7	
Sample collected on: 11.11.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 7				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	69.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	36.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.0
05.	Ammonia (NH ₃)	µg/m ³	400	5.7
06.	Ozone (O ₃)	µg/m ³	180	6.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.19
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Pakhar (109.507)

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0439/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 9	
Sample collected on: 11.11.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 9				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	66.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.8
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.18
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	2.6
10.	Arsenic (As)	ng/m ³	06	1.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (109.507)

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0430/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 10	
Sample collected on: 11.11.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 10				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	55.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	28.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.3
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	6.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.15
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	0.85
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.13

For Mahabal Enviro Engineers Pvt. Ltd.

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Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0431/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Pakhar Loading Area	
Sample collected on: 11.11.2020	

LOCATION / IDENTIFICATION: Pakhar Loading Area				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	61.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	33.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.1
05.	Ammonia (NH ₃)	µg/m ³	400	4.6
06.	Ozone (O ₃)	µg/m ³	180	7.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.18
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	0.71
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0430/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Yatri Shed (Near K 10)	
Sample collected on: 09.11.2020	

LOCATION / IDENTIFICATION: Yatri Shed (Near K 10)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	56.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.4
05.	Ammonia (NH ₃)	µg/m ³	400	3.7
06.	Ozone (O ₃)	µg/m ³	180	6.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.17
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.13

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0431/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Bunglapart Village	
Sample collected on: 09.11.2020	

LOCATION / IDENTIFICATION: Near Bunglapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	52.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.9
05.	Ammonia (NH ₃)	µg/m ³	400	3.5
06.	Ozone (O ₃)	µg/m ³	180	7.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.07
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	1.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0432/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village	
Sample collected on: 09.11.2020	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	45.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	20.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.1
05.	Ammonia (NH ₃)	µg/m ³	400	3.0
06.	Ozone (O ₃)	µg/m ³	180	6.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.04
08.	Lead (Pb)	µg/m ³	1.0	0.07
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0433/2020-21	Date: 28 th December, 2020
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village	
Sample collected on: 09.11.2020	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	51.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	27.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.5
05.	Ammonia (NH ₃)	µg/m ³	400	4.0
06.	Ozone (O ₃)	µg/m ³	180	6.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.07
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

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PAKHAR (109.507) – ENVIRONMENTAL MONITORING REPORT

DECEMBER 2020

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries:

Environmental Monitoring Report

DECEMBER 2020

CONTENT

	LOCATION – PAKHAR (109.507)
	AMBIENT AIR QUALITY – CORE ZONE
1	Near Mine Quarry No. – K 7
2	Near Mine Quarry No. – K 9
3	Near Mine Quarry No. – K 10
4	Pakhar Loading Area





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Hindalco Industries:

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0338/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 7	
Sample collected on: 09.12.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 7

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	67.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0339/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 9	
Sample collected on: 09.12.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 9				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	62.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.8
05.	Ammonia (NH ₃)	µg/m ³	400	5.2
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.2
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.23

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0340/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 10	
Sample collected on: 09.12.2020	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 10				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	72.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.7
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	11.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.23

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0341/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Pakhar Loading Area	
Sample collected on: 09.12.2020	

LOCATION / IDENTIFICATION: Pakhar Loading Area				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	85.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	43.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	6.8
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.3
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

DECEMBER 2020

Reports no: MEEPL/JAN/0330/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Yatri Shed (Near K 10)	
Sample collected on: 07.12.2020	

LOCATION / IDENTIFICATION: Yatri Shed (Near K 10)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	49.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	24.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.3
05.	Ammonia (NH ₃)	µg/m ³	400	5.7
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.19
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

DECEMBER 2020

Reports no: MEEPL/JAN/0331/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Bunglapart Village	
Sample collected on: 07.12.2020	

LOCATION / IDENTIFICATION: Near Bunglapart Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	45.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	21.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.5
05.	Ammonia (NH ₃)	µg/m ³	400	5.7
06.	Ozone (O ₃)	µg/m ³	180	7.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.05
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.14

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

DECEMBER 2020

Reports no: MEEPL/JAN/0332/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village	
Sample collected on: 07.12.2020	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.7
05.	Ammonia (NH ₃)	µg/m ³	400	2.2
06.	Ozone (O ₃)	µg/m ³	180	9.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.20
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.1
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.6
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

DECEMBER 2020

Reports no: MEEPL/JAN/0333/2020-21	Date: 25 th January, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village	
Sample collected on: 07.12.2020	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	40.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.7
05.	Ammonia (NH ₃)	µg/m ³	400	4.5
06.	Ozone (O ₃)	µg/m ³	180	9.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	0.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.14

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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Corporate Office: 7/8 Bhaveshwar Bhuvan, Opp Portugese Church, Near Dindayal Upadhyay Garden, Gokhale Road (North), Dadar (West), Mumbai 400 028. Tel: +91 22 24370520 / 6672.

E: ecoventures.mumbai@gmail.com / ecoventures@eco-ventures.in

Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
District – Ranchi 834009

M. & M. Ltd. – PAKHAR (109.507) – ENVIRONMENTAL MONITORING REPORT

JANUARY 2021

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JANUARY 2021

CONTENT

	LOCATION - PAKHAR (109.507)
	DRINKING WATER ANALYSIS





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,

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Hindalco Industries:

Environmental Monitoring Report

JANUARY 2021

Report No.: MEEPL/FEB/0345/2020-21	Date: 10 th February, 2021
Sample described by customer : DRINKING WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER	
Marks on Sample: Location: PAKHAR (109.507) – DRINKING WATER	
Sample collected on: 11.01.2021	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.2	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	277	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	33.1	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	25.8	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	5.5	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	4.5	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries:

Environmental Monitoring Report

JANUARY 2021

Continuation Sheet MEEPL/FEB/0345/2020-21

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO ₃)	mg/l	1.5	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.16	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.10	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	25	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.8	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.15	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S ₂ -C 4-175 & F 4-178





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Hindalco Industries:

Environmental Monitoring Report

JANUARY 2021

Continuation Sheet
MEEPL/FEB/0345/2020-21

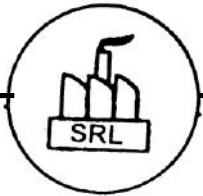
S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9- 76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Conclusion: The Physical & Chemical Analysis report indicates that water is not contaminated.

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





SCIENTIFIC RESEARCH LABORATORY

An ISO 9001:2015 (QMS) & OHSAS 45001:2018 Certified Organization
Recognized by Jharkhand State Pollution Control Board
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Tele No.: 0651- 2950060, Mobile: 94701 30700, E-mail: nirajksingh2003@yahoo.co.in

Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Near Mine Quarry No. K- 7
- Date of Monitoring : 29.01.2021 to 30.01.2021
- Ambient Temperature : 25°C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

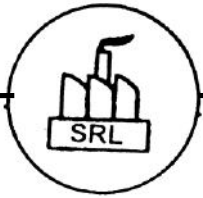
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	78.50
2.	PM _{2.5}	µg/m ³	47.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	08.20
4.	Nitrogen Oxides (NOx)	µg/m ³	19.60
5.	Ozone (O ₃)	µg/m ³	18.00
6.	Ammonia (NH ₃)	µg/m ³	12.50
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	00.60
12.	Carbon monoxide (CO)	mg/m ³	00.61

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

for Scientific Research Laboratory,

(Dr. Niraj Kumar Singh)
In-charge, Jharkhand office.



SCIENTIFIC RESEARCH LABORATORY

An ISO 9001:2015 (QMS) & OHSAS 45001:2018 Certified Organization
Recognized by Jharkhand State Pollution Control Board
Analytical & Environmental Engineering Laboratory
C- 144, Aman Green City, Pundag, Ranchi- 834 004, Jharkhand
Tele No.: 0651- 2950060, Mobile: 94701 30700, E-mail: nirajksingh2003@yahoo.co.in

Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Near Mine Quarry No. K- 9
- Date of Monitoring : 29.01.2021 to 30.01.2021
- Ambient Temperature : 25°C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

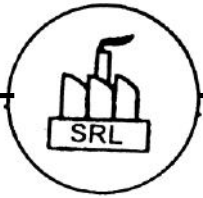
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	72.00
2.	PM _{2.5}	µg/m ³	41.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	07.80
4.	Nitrogen Oxides (NOx)	µg/m ³	18.00
5.	Ozone (O ₃)	µg/m ³	16.50
6.	Ammonia (NH ₃)	µg/m ³	14.00
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	01.00
12.	Carbon monoxide (CO)	mg/m ³	00.58

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

for Scientific Research Laboratory,

(Dr. Niraj Kumar Singh)
In-charge, Jharkhand office.



SCIENTIFIC RESEARCH LABORATORY

An ISO 9001:2015 (QMS) & OHSAS 45001:2018 Certified Organization
Recognized by Jharkhand State Pollution Control Board
Analytical & Environmental Engineering Laboratory
C- 144, Aman Green City, Pundag, Ranchi- 834 004, Jharkhand
Tele No.: 0651- 2950060, Mobile: 94701 30700, E-mail: nirajksingh2003@yahoo.co.in

Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Near Mine Quarry No. K- 10
- Date of Monitoring : 29.01.2021 to 30.01.2021
- Ambient Temperature : 25°C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

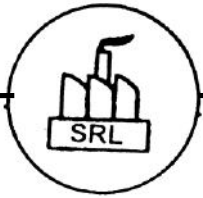
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	75.20
2.	PM _{2.5}	µg/m ³	44.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	07.90
4.	Nitrogen Oxides (NOx)	µg/m ³	19.30
5.	Ozone (O ₃)	µg/m ³	15.00
6.	Ammonia (NH ₃)	µg/m ³	13.00
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	00.60
12.	Carbon monoxide (CO)	mg/m ³	00.62

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

for Scientific Research Laboratory,

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Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Near Pakhar Loading Area
- Date of Monitoring : 29.01.2021 to 30.01.2021
- Ambient Temperature : 25⁰C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

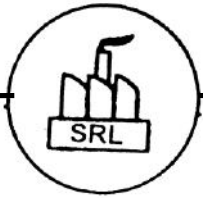
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	77.50
2.	PM _{2.5}	µg/m ³	45.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	08.20
4.	Nitrogen Oxides (NOx)	µg/m ³	20.00
5.	Ozone (O ₃)	µg/m ³	16.00
6.	Ammonia (NH ₃)	µg/m ³	12.60
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	00.80
12.	Carbon monoxide (CO)	mg/m ³	00.64

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

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Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Near Banglapart Village
- Date of Monitoring : 30.01.2021 to 31.01.2021
- Ambient Temperature : 25°C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

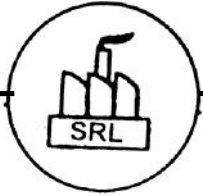
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	70.00
2.	PM _{2.5}	µg/m ³	43.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	08.20
4.	Nitrogen Oxides (NO _x)	µg/m ³	17.50
5.	Ozone (O ₃)	µg/m ³	14.00
6.	Ammonia (NH ₃)	µg/m ³	13.00
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	02.40
12.	Carbon monoxide (CO)	mg/m ³	00.86

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

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Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Banglapart Vill. (In Utkramit Rajkiya Prathmik Vidyalaya)
- Date of Monitoring : 30.01.2021 to 31.01.2021
- Ambient Temperature : 25°C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

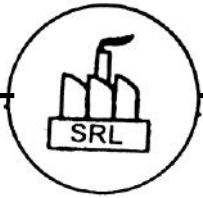
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	65.50
2.	PM _{2.5}	µg/m ³	38.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	07.00
4.	Nitrogen Oxides (NO _x)	µg/m ³	16.40
5.	Ozone (O ₃)	µg/m ³	12.00
6.	Ammonia (NH ₃)	µg/m ³	12.00
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	02.40
12.	Carbon monoxide (CO)	mg/m ³	00.86

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

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Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Dumrapart Vill. (In Utkramit Rajkiya Prathmik Vidyalaya)
- Date of Monitoring : 30.01.2021 to 31.01.2021
- Ambient Temperature : 25°C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

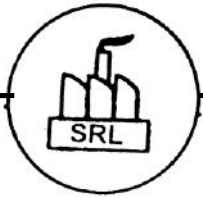
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	67.80
2.	PM _{2.5}	µg/m ³	40.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	07.80
4.	Nitrogen Oxides (NO _x)	µg/m ³	16.90
5.	Ozone (O ₃)	µg/m ³	16.00
6.	Ammonia (NH ₃)	µg/m ³	15.00
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	00.80
12.	Carbon monoxide (CO)	mg/m ³	00.54

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

for Scientific Research Laboratory,

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Report No. : SRL/HINDALCO/DEC-21/20

Date: 25.02.2021

TEST REPORT

- Name and Address of the Unit : Pakhar Bauxite Mines (109.507 ha.) M&M.
(HINDALCO Industries Limited)
At.: Pakhar, P.O.: Kisko, District: Lohardaga
Jharkhand.
- Location of Monitoring : Beside Yatri Shed (Near K- 10)
- Date of Monitoring : 30.01.2021 to 31.01.2021
- Ambient Temperature : 25°C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM ₁₀	µg/m ³	71.50
2.	PM _{2.5}	µg/m ³	42.00
3.	Sulphur dioxide (SO ₂)	µg/m ³	06.60
4.	Nitrogen Oxides (NO _x)	µg/m ³	17.30
5.	Ozone (O ₃)	µg/m ³	15.80
6.	Ammonia (NH ₃)	µg/m ³	14.00
7.	Lead (Pb)	µg/m ³	<0.01
8.	Benzene (C ₆ H ₆)	µg/m ³	<0.01
9.	Arsenic (As)	ng/m ³	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m ³	<0.01
11.	Nickel (Ni)	ng/m ³	00.70
12.	Carbon monoxide (CO)	mg/m ³	00.56

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM_{2.5} collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM₁₀ fraction.

for Scientific Research Laboratory,

(Dr. Niraj Kumar Singh)
In-charge, Jharkhand office.



Eco Ventures Pvt. Ltd.

Regd. Office: 2/37, Sarvapriya Vihar, Near IIT Gate, New Delhi -110016

Corporate Office: 7/8 Bhaveshwar Bhuvan, Opp Portugese Church, Near Dindayal Upadhyay Garden, Gokhale Road (North), Dadar (West), Mumbai 400 028. Tel: +91 22 24370520 / 6672.

E: ecoventures.mumbai@gmail.com / ecoventures@eco-ventures.in

Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
District – Ranchi 834009

PAKHAR (109.507) – ENVIRONMENTAL MONITORING REPORT

FEBRUARY 2021

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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E-mail: mahabalranchi@gmail.com

Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

CONTENT

	LOCATION – PAKHAR (109.507)
	AMBIENT AIR QUALITY – CORE ZONE
1	Near Mine Quarry No. – K 7
2	Near Mine Quarry No. – K 9
3	Near Mine Quarry No. – K 10
4	Pakhar Loading Area





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Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0388/2020-21	Date: 25 th March, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 7	
Sample collected on: 10.02.20210	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 7

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.1
05.	Ammonia (NH ₃)	µg/m ³	400	4.9
06.	Ozone (O ₃)	µg/m ³	180	8.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.32
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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E-mail: mahabalanranchi@gmail.com

Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0389/2020-21	Date: 25 th March, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 9	
Sample collected on: 10.02.20210	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 9				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	66
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.5
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	9.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.2
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

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E-mail: mahabalanranchi@gmail.com

Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0390/2020-21	Date: 25 th March, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Mine Quarry No. – K 10	
Sample collected on: 10.02.20210	

LOCATION / IDENTIFICATION: Near Mine Quarry No. – K 10				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	75
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	43
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.9
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	9.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.30
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0391/2020-21	Date: 25 th March, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Pakhar Loading Area	
Sample collected on: 10.02.20210	

LOCATION / IDENTIFICATION: Pakhar Loading Area				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	88
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	52
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	6.9
06.	Ozone (O ₃)	µg/m ³	180	9.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.37
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.3
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,

Mobile No: +91 9431.102.102 / +91 9955.358.262,

E-mail: mahabalaranchi@gmail.com

Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

Report No.: MEEPL/MAR/0380/2020-21

Date: 25th March, 2021

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Yatri Shed (Near K 10)

Sample collected on: 08.02.2021

LOCATION / IDENTIFICATION: Yatri Shed (Near K 10)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	54
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.9
06.	Ozone (O ₃)	µg/m ³	180	7.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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E-mail: mahabalanranchi@gmail.com

Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

Report No.: MEEPL/MAR/0381/2020-21	Date: 25 th March, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Bunglapart Village	
Sample collected on: 08.02.2021	

LOCATION / IDENTIFICATION: Near Bunglapart Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	51
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	28
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.9
05.	Ammonia (NH ₃)	µg/m ³	400	6.2
06.	Ozone (O ₃)	µg/m ³	180	7.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.05
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.17

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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E-mail: mahabalanranchi@gmail.com

Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

Report No.: MEEPL/MAR/0382/2020-21	Date: 25 th March, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village	
Sample collected on: 08.02.2021	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	2.8
06.	Ozone (O ₃)	µg/m ³	180	9.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.1
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.6
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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E-mail: mahabalanranchi@gmail.com

Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

Report No.: MEEPL/MAR/0383/2020-21	Date: 25 th March, 2021
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village	
Sample collected on: 08.02.2021	

LOCATION / IDENTIFICATION: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	53
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	9.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	0.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.17

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





YUGANTAR BHARATI

ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY



Accredited by: - National Accreditation Board for Testing Laboratory (NABL) & Jharkhand State Pollution Control Board (JSPCB)
Certified by: - An ISO 9001:2015 & BS OHSAS 18001 : 2007

Certificate No. - TC 7813

ANALYTICAL TEST REPORT

Atmospheric Pollution Test Report		URL(Unique Lab Report) No.	TC78132120000306P
Report Release Date	03 rd April, 2021	Report ID	YBAEEL- 210312 - 105823-A01
Sample Description	Ambient Air Quality	Job code/ Ref. no.	YBAEEL/WA/LA/Mar. -21/42
Type of Industry	Bauxite Mines	Work Order No./ Date	JSPCB Application No.- 10215534
Issue to	M/s Pakhar Bauxite Mines (109.507 hect.)M&M At. - Pakhar, PO - Kisko, Dist. - Lohardaga, Jharkhand.		
Sampling Period	22/03/2021 - 23/03/2021	Mode of sample collection	By YBAEEL Team
Sampling Protocol	IS:5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13)		
Sampling Locations	A. Near Mine Quarry No. - K - 7 (23°33'29.12"N, 84°36'43.86"E)	B. Near Mine Quarry No. - K - 9 (23°33'30.72"N, 84°37'07.83"E)	
	C. Near Mine Quarry No. - K - 10 (23°33'14.59"N, 84°37'21.94"E)	D. Pakhar Loading Area (23°33'15.01"N, 84°36'53.77"E)	
Meteorological Cond.	W.C.- Clear	RH % - 43%	Temp. - 28°C
Sample receipt Date	23/03/2021	Analysis Started on	23/03/2021
		Analysis completed on	02/04/2021

**Test Results **

Parameters	Test Method	Units	Sampling Location				NAAQS (2009)
			Site A	Site B	Site C	Site D	
Particulate matter (PM ₁₀)	IS:5182 (P-23) 2006	µg/m ³	70.2	84.4	76.8	64.9	100
Particulate matter (PM _{2.5})	USEPA -40 CFR (PART 50) (50.7)	µg/m ³	34.1	38.8	35.7	30.4	60
Sulphure Dioxide (SO ₂)	IS:5182 (P-2) 2001 RA 2012	µg/m ³	15.3	13.0	14.2	11.8	80
Nitrogen Dioxide (NO ₂)	IS:5182 (P-6) 2006 RA 2012	µg/m ³	28.2	24.4	26.3	22.5	80
Carbon Monoxide (CO)*	IS:5182 (P-10) 1999 RA 2003	mg/m ³	BDL (MDL 1.8)	BDL (MDL 1.8)	BDL (MDL 1.8)	BDL (MDL 1.8)	04

End of Report

Remarks	Samples Comply with the prescribed specification as per NAAQS 2009.
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit,
Note	The parameters marked with * are not accredited by NABL.
Specific contractual notes	All values are expressed in as unit.
	The results listed refer only to the tested sample and applicable parameter.
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law
	This report cannot be reproduced, except when in full, without the written permission of the Lab In-charge
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise
	The liability of the laboratory is limited to the invoiced amount
	All disputes are subjected to the Ranchi Jurisdiction

Tested by Amit Kumar Sinha	Verified by Brij Nandan Kumar	Issued by Umesh Das
Lab Analyst	Section In-Charge	Technical Manager

Branch Office :- Jamshedpur Dhanbad Hazaribag Pakur



Main Office : Namkum Post Office, Sidroul, Ranchi, Jharkhand
Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in



Annexure 1		
Piezometer Reading - Pakhar 109.507 ha		
S No	Month	Depth (meter)
1	October'20	39.72
2	November'20	39.68
3	December'20	39.62
4	January'21	39.47
5	February'21	-
6	March'21	-

Note: - Instrument is under breakdown and sent for repair.

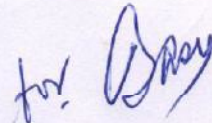
Annexure-2

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2020-21

The composite cost during the year 2020-21 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 ha), Pakhar (15.58 ha), Pakhar (109.507 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Serengdag (140.06 ha), Serengdag (155.81 ha), Jalim & Sanai (12.14 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.97 ha) Kujam II (157.38 ha), Bagru (75.41 ha), Hisri New (14.55 ha), Chiro kukud (152.57 ha), Orsa pat (196.36 ha), Bhusar (65.31 ha) and Bimarla Bauxite Mines (134.52 ha).

S No	Description	Budget (in Rupees) FY 2020-21	Actual (in Rupees) FY 2020-21 (From October'20 to March'21)
1	Pollution Control & Environment monitoring	38,21,524.00	26,99,875.07
2	Reclamation/ Back filling & Rehabilitation**	3,21,50,000.00	2,90,93,388.00
3	Green belt, Plantation & Water spraying arrangement	49,25,800.00	46,95,346.80
4	Rural Development	3,20,21,451.00	1,65,48,825.39

**Part of OB removed cost.

for 

(Basudev Gangopadhyay)
Head (Geology & Environment)

MINERALS & MINERALS LIMITED

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

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. :

Date

Annexure 3

Date – 06.07.2020

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. Kiran Shankar Singh (Coordinator)
2. Mr. Abhay Bharti (CSR) - Member
3. Mr. Amlendu Singh (Fore man) – Member
4. Mr. Abhay Kumar – 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
Senior Executive (Quality & Environment)


Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from October'20 to March'21									
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	25490	0.178	0.15	0.00	
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	57149	0.512	0.00	0.00	
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	37780	1.52	4.28	50116.10	
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	90915	3.19	6.18	157480.42	
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	79180	3.27	8.420	285021.770	
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	138808	6.52	6.23	208233.55	
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	81960	1.9	1.2	225276.75	
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	Nil	Nil	Nil	Nil	
10	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	23128	0.46	0.44	22658.4	

Annexure 4

11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL	
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL	
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL	
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL	
15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	111000	0.80	0.70	272905.96	
Minerals & Minerals Limited									
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	3200	0.20	0.10	31346.54	
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	108500	0.46	0.75	234214.42	
18	Bimarla Bauxite Mine	134.37	300000	18.07.2009 to 17.07.2059	62100	2.95	2.50	160141.10	

*Static information about the mines included in the above table

for 

Basudev Gangopadhyay
Head (Geology & Environment)