

HIL/LHD/ENV/MoEF/65

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 (8.09 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga, Jharkhand for the period October'20 to March'21.

**Ref:** Environmental Clearance letter no J-11015/135/2006-IA II (M) dated 24<sup>th</sup> January 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar (8.09 ha)** Bauxite Mining project of **M/s Hindalco Industries 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
8.09	80000	16.05.1973 to 31.03.2030

Hope you will find the same in order.

Thanking You.

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

*for Basudev*

(Basudev Gangopadhyay)  
GM (Geology & Environment)

Enclosure: - As Above

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Name of the Project : Pakhar Bauxite Mine (8.09 ha)  
M/s Hindalco Industries Limited

Environment Clearance No. & date : J-11015/135/2006-IA.II(M), dated 24.01.2007

Period of compliance Report : From 1<sup>st</sup> October 2020 to 31<sup>st</sup> March 2021

S No	Specific Conditions	Compliance Status
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Winning of Bauxite is closed w.e.f Nov 2014 due to exhaustion of resources and field activity of final Mine closure plan are completed.
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.	Winning of Bauxite is closed w.e.f Nov 2014 due to exhaustion of resources and field activity of final Mine closure plan are completed.
3	Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	The Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. Final Mine Closure Plan has been approved by Indian Bureau of Mines. Field activity of final Mine closure plan are completed.
4	The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operation.	No natural water course was obstructed during mining in past. Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.
5	Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	The Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease during financial year 2020-21 due to exhaustion of mineral reserve. Field activity of final Mine closure plan are completed.
6	The waste generated shall be concurrently backfilled in the mined out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should	Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve.

	continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six monthly basis.	No external OB dump is in mine lease area. Field activity of final Mine closure plan are completed.
7	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.</p> <p>Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>Winning of bauxite operation not carried out in this lease during financial year 2020-21 due to exhaustion of mineral reserve.</p> <p>The Mine is not in operation since Nov 2014.</p> <p>Field activity of final Mine closure plan are completed.</p>
8	Plantation shall be raised in an area of 6.35 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.	<p>Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Plantation done. Entire land is utilized for meaningful purpose.</p> <p>Field activity of final Mine closure plan are completed.</p>
9	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.	<p>Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created.</p> <p>Field activity of final Mine closure plan are completed.</p>
10	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon	<p>Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created.</p> <p>Field activity of final Mine closure plan are completed.</p>

	(August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.	
11	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve.  The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.
12	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve.  The Mine is not in operation since Nov 2014.  FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.
13	Drills should either be operated with dust extractors or should be equipped with water injection system.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve.  The Mine is not in operation since Nov 2014.  FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.
14	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.	Winning of bauxite operation not carried out in this lease during financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.
15	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	The Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve.

		FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	The Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. FMCP approved by IBM. Mine Voids are reclaimed and rehabilitated. Water body is also created. Field activity of final Mine closure plan are completed.
17	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.
18	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.	Approval letter of Final Mine closure plan duly approved by Indian Bureau of Mines is hereby attached as Annexure-5

### 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 & Forest	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Enclosed as Annexure 4.

		Field activity of final Mine closure plan are completed.
3	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Monitoring Reports of Pakhar Plateau is enclosed as Annexure 1.
4	Data on ambient air quality (RPM, SPM, SO <sub>2</sub> , and NO <sub>x</sub> ) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.	Monitoring Reports of Pakhar Plateau is enclosed in Annexure-1.
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.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Water spraying is being done around Mine Lease in dust prone areas. Field activity of final Mine closure plan are completed.
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.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.
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 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are completed.
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	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. Field activity of final Mine closure plan are

	observe any contractions due to exposure to dust and take corrective measures, if needed.	completed.
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.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.  We have Environment Management Cell for our Pakhar Group of Mines. The same is looking after Environment issues of this Mine, Attached as Annexure-3.  Field activity of final Mine closure plan are completed.
10	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.	Winning of bauxite operation not carried out in this lease during the financial year 2020-21 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. This was an operational mine and hence provision related to financial closure not applicable.  Field activity of final Mine closure plan are completed.
11	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Statement of budgetary provision and actual expenses for environmental protection measure is enclosed as Annexure-2. Currently, the Regional Office is located at Ranchi.  Field activity of final Mine closure plan are completed.
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	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied
14	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.	Displayed.

15	The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office.
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Signature





# 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.

**Branch Office:**

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

## CONTENT

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	<b>SPOT NOISE</b>
	<b>SPRING WATER QUALITY</b>
	<b>DRINKING WATER ANALYSIS</b>





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0471/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Mine Quarry No. – K 7	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	81
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	47
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.43
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0472/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Mine Quarry No. – K 9	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	78
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.45
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.7
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.33

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0473/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Mine Quarry No. – K 10	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	86
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	42
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.34
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

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

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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OCTOBER 2020

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

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Pakhar (109.507) Near Office	dB (A) L <sub>eq</sub>	75	63.0	70	56.9

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# 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: [mahabalanranchi@gmail.com](mailto:mahabalanranchi@gmail.com)

Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

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

Location/Identification	Unit	Limit (day)	Result
Pakhar (109.507) Loading Point Near Dumper	dB (A) L <sub>eq</sub>	75	70.5

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

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

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	5 Max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 <sup>nd</sup> 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 <sub>3</sub> )	mg/l	35	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-G, 4-69
9	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	41	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	33	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-b, 4-72
11	Sulphate (as SO <sub>4</sub> )	mg/l	28.5	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.21	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.6	30 max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.5	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.07	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7-8	APHA 20 <sup>th</sup> 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





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER 2020

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

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO <sub>3</sub> )	mg/l	30.5	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	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 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	4.3	200 max	APHA 22 <sup>nd</sup> 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 <sub>3</sub> )	mg/l	1.5	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.14	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.10	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	27	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.8	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NH <sub>3</sub> -F, 4-115
20	Iron (as Fe)	mg/l	0.15	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 <sup>nd</sup> ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> ED. 2012, 4500-S <sub>2</sub> -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
<b>Microbiological Analysis</b>					
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
<b>Pesticides Residues</b>					
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
<b>Remarks: N.D- Not Detected</b>					

**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

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

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

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0455/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Utkramit Rajkiya Prathmik Vidyalaya Bunglapart Village	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	50
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	23
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.4
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.32

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0456/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	52
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	29
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.4
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0457/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Yatri Shed (Near K 10)	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	64
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	31
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.31
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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**





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (109.507)

Environmental Monitoring Report

NOVEMBER 2020

## CONTENT

LOCATION – PAKHAR (109.507)	
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
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

<b>Report no:</b> MEEPL/DEC/0438/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Mine Quarry No. – K 7	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	69.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	36.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.19
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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

<b>Report no:</b> MEEPL/DEC/0439/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Mine Quarry No. – K 9	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	66.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	34.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.18
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (109.507)

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0430/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Mine Quarry No. – K 10	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	55.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.15
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	0.85
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.13

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Hindalco Industries: Pakhar (109.507)

Environmental Monitoring Report

NOVEMBER 2020

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

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

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0430/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Yatri Shed (Near K 10)	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	56.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	29.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.4
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.17
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.13

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

NOVEMBER 2020

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

LOCATION / IDENTIFICATION: Near Bunglapart Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	52.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.07
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	45.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	20.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.04
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.07
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.15

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0433/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	51.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	27.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.07
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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District – Ranchi 834009

### **PAKHAR (109.507) – ENVIRONMENTAL MONITORING REPORT**

**DECEMBER 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

DECEMBER 2020

## CONTENT

	LOCATION – PAKHAR (109.507)
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
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





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0338/2020-21	Date: 25 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	67.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.0
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0339/2020-21	Date: 25 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	62.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	30.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	72.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	39.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	11.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.23

For 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 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	85.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	43.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.35
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	49.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	24.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.19
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	45.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	21.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.05
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.4
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	50.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	29.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.20
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

DECEMBER 2020

Reports no: MEEPL/JAN/0333/2020-21	Date: 25 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	40.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	0.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.14

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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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**

**JANUARY 2021**

**For Mahabal Enviro Engineers Pvt. Ltd.**

**Vijay Pandey**  
**SENIOR EXECUTIVE**





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Hindalco Industries:

Environmental Monitoring Report

JANUARY 2021

## CONTENT

	LOCATION - PAKHAR (109.507)
	DRINKING WATER ANALYSIS





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JANUARY 2021

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

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-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 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO <sub>3</sub> )	mg/l	33.1	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	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 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	4.5	200 max	APHA 22 <sup>nd</sup> 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 <sub>3</sub> )	mg/l	1.5	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.16	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.10	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	25	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.8	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NH <sub>3</sub> -F, 4-115
20	Iron (as Fe)	mg/l	0.15	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 <sup>nd</sup> ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 <sup>nd</sup> 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 <sup>nd</sup> ED. 2012, 4500-S <sub>2</sub> -C 4-175 & F 4-178





# 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: [mahabalanranchi@gmail.com](mailto:mahabalanranchi@gmail.com)

Hindalco Industries:

Environmental Monitoring Report

JANUARY 2021

Continuation Sheet  
MEEPL/FEB/0345/2020-21

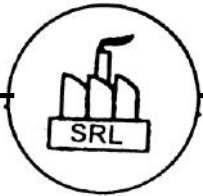
S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
<b>Microbiological Analysis</b>					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9- 76
<b>Pesticides Residues</b>					
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
<b>Remarks: N.D- Not Detected</b>					

**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  
Analytical & Environmental Engineering Laboratory  
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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 :

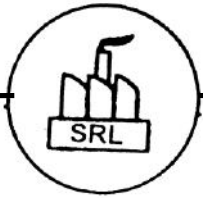
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM <sub>10</sub>	µg/m <sup>3</sup>	78.50
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	47.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	08.20
4.	Nitrogen Oxides (NOx)	µg/m <sup>3</sup>	19.60
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	18.00
6.	Ammonia (NH <sub>3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

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> fraction.

for Scientific Research Laboratory,

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



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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- 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 :

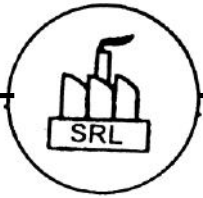
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM <sub>10</sub>	µg/m <sup>3</sup>	72.00
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	41.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	07.80
4.	Nitrogen Oxides (NO <sub>x</sub> )	µg/m <sup>3</sup>	18.00
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	16.50
6.	Ammonia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

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> fraction.

for Scientific Research Laboratory,

(Dr. Niraj Kumar Singh)  
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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 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 :

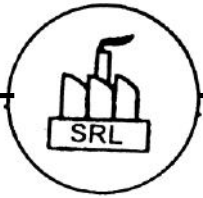
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM <sub>10</sub>	µg/m <sup>3</sup>	75.20
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	44.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	07.90
4.	Nitrogen Oxides (NOx)	µg/m <sup>3</sup>	19.30
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	15.00
6.	Ammonia (NH <sub>3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

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> fraction.

for Scientific Research Laboratory,

(Dr. Niraj Kumar Singh)  
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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 : 25<sup>0</sup>C
- Average Relative Humidity : 36 %
- Meteorological Condition : Clear
- Results of Ambient Air Quality :

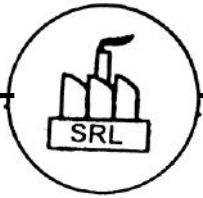
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM <sub>10</sub>	µg/m <sup>3</sup>	77.50
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	45.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	08.20
4.	Nitrogen Oxides (NOx)	µg/m <sup>3</sup>	20.00
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	16.00
6.	Ammonia (NH <sub>3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

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> 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 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 <sub>10</sub>	µg/m <sup>3</sup>	70.00
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	43.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	08.20
4.	Nitrogen Oxides (NO <sub>x</sub> )	µg/m <sup>3</sup>	17.50
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	14.00
6.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	13.00
7.	Lead (Pb)	µg/m <sup>3</sup>	<0.01
8.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	<0.01
9.	Arsenic (As)	ng/m <sup>3</sup>	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m <sup>3</sup>	<0.01
11.	Nickel (Ni)	ng/m <sup>3</sup>	02.40
12.	Carbon monoxide (CO)	mg/m <sup>3</sup>	00.86

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> 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 : 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 <sub>10</sub>	µg/m <sup>3</sup>	65.50
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	38.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	07.00
4.	Nitrogen Oxides (NOx)	µg/m <sup>3</sup>	16.40
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	12.00
6.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	12.00
7.	Lead (Pb)	µg/m <sup>3</sup>	<0.01
8.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	<0.01
9.	Arsenic (As)	ng/m <sup>3</sup>	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m <sup>3</sup>	<0.01
11.	Nickel (Ni)	ng/m <sup>3</sup>	02.40
12.	Carbon monoxide (CO)	mg/m <sup>3</sup>	00.86

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> 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 : 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 :

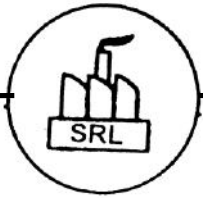
Sl. No.	PARAMETERS	UNIT	RESULTS
1.	PM <sub>10</sub>	µg/m <sup>3</sup>	67.80
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	40.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	07.80
4.	Nitrogen Oxides (NO <sub>x</sub> )	µg/m <sup>3</sup>	16.90
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	16.00
6.	Ammonia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

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> 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 : 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 <sub>10</sub>	µg/m <sup>3</sup>	71.50
2.	PM <sub>2.5</sub>	µg/m <sup>3</sup>	42.00
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	06.60
4.	Nitrogen Oxides (NOx)	µg/m <sup>3</sup>	17.30
5.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	15.80
6.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	14.00
7.	Lead (Pb)	µg/m <sup>3</sup>	<0.01
8.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	<0.01
9.	Arsenic (As)	ng/m <sup>3</sup>	<0.01
10.	Benzo (a) Pyrene (BaP)	ng/m <sup>3</sup>	<0.01
11.	Nickel (Ni)	ng/m <sup>3</sup>	00.70
12.	Carbon monoxide (CO)	mg/m <sup>3</sup>	00.56

Note: 01. Ambient Fine Dust Sampler [Make Ecotech Instruments, Greater Noida, Model-AAS 190] was used for PM<sub>2.5</sub> collection.

02. Analysis of Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo (a) Pyrene (BaP) was carried out on PM<sub>10</sub> 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](mailto:ecoventures.mumbai@gmail.com) / [ecoventures@eco-ventures.in](mailto: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](mailto: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 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	70
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	39
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.32
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.0
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0389/2020-21	Date: 25 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	66
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	37
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0390/2020-21	Date: 25 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	75
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	43
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0391/2020-21	Date: 25 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	88
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	52
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.37
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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E-mail: [mahabalanranchi@gmail.com](mailto:mahabalanranchi@gmail.com)

Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

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

Date: 25<sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	54
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	30
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

Report No.: MEEPL/MAR/0381/2020-21	Date: 25 <sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	51
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.05
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.4
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.17

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

Report No.: MEEPL/MAR/0382/2020-21

Date: 25<sup>th</sup> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	59
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	37
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Pakhar (115.13)

Environmental Monitoring Report

FEBRUARY 2021

<b>Report No.:</b> MEEPL/MAR/0383/2020-21	<b>Date:</b> 25 <sup>th</sup> March, 2021
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: Near Utkramit Rajkiya Prathmik Vidyalaya Dumrapart Village	
<b>Sample collected on:</b> 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 <sub>10</sub>	µg/m <sup>3</sup>	100	53
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	39
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	0.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	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

<b>Atmospheric Pollution Test Report</b>		<b>URL(Unique Lab Report) No.</b>	<b>TC78132120000306P</b>
<b>Report Release Date</b>	03 <sup>rd</sup> April, 2021	<b>Report ID</b>	YBAEEL- 210312 - 105823-A01
<b>Sample Description</b>	Ambient Air Quality	<b>Job code/ Ref. no.</b>	YBAEEL/WA/LA/Mar. -21/42
<b>Type of Industry</b>	Bauxite Mines	<b>Work Order No./ Date</b>	JSPCB Application No.- 10215534
<b>Issue to</b>	M/s Pakhar Bauxite Mines (109.507 hect.)M&M At. - Pakhar, PO - Kisko, Dist. - Lohardaga, Jharkhand.		
<b>Sampling Period</b>	22/03/2021 - 23/03/2021	<b>Mode of sample collection</b>	By YBAEEL Team
<b>Sampling Protocol</b>	IS:5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13)		
<b>Sampling Locations</b>	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)	
<b>Meteorological Cond.</b>	W.C.- Clear	RH % - 43%	Temp. - 28°C
<b>Sample receipt Date</b>	23/03/2021	<b>Analysis Started on</b>	23/03/2021
		<b>Analysis completed on</b>	02/04/2021

#### \*\*Test Results \*\*

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

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

<b>Remarks</b>	Samples Comply with the prescribed specification as per NAAQS 2009.
<b>Abbreviation</b>	MDL : Minimum detection limit, BDL : Below detection limit,
<b>Note</b>	The parameters marked with * are not accredited by NABL.
<b>Specific contractual notes</b>	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



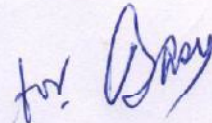
## Annexure-2

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

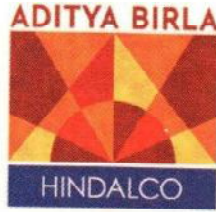
The composite cost during the year 2020-21 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (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)



Annexure 3

Date – 06.07.2020

**Office Order**

Environmental Cell has been re-constituted at Pakhar Bauxite Mine (Area 8.09 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. S P Jha (Coordinator)
2. Mr. Chandan Kumar - Geologist
3. Mr. Sunil Kumar Pandey (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.

A handwritten signature in blue ink, appearing to read "Basudev Gangopadhyay", is written over a faint blue circular stamp.

**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	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	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	
<b>Minerals &amp; Minerals Limited</b>									
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

  
**Basudev Gangopadhyay**  
 Head (Geology & Environment)

Registered Parcel



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

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

No.: RAN/LOH/BX/FMCP-03/2014-15

318-B, Road No.- 3,  
Ashok Nagar,  
Ranchi – 834 002,  
Date: 15/05/2015

To: ✓ **Shri A. K. Agarwal,**  
Director cum Nominated Owner  
M/s HINDALCO Industries Ltd.,  
Court Road, Lohardaga - 835 302 (Jharkhand).

**Sub: Approval of Final Mine Closure Plan in respect of PAKHAR Bauxite Mines of M/s HINDALCO Industries Ltd. over an area of 8.09 hectares in village-Pakhar, Lohardaga district of Jharkhand State submitted under Rule 23C of MCDR, 1988.**

Ref : Your A.G.M. (Geology) letters no.(1)HIL/LHD/BX/IBM/926(I) Dated 25/09/2014  
(2)HIL/LHD/BX/IBM/ Dated 06/04/2015

This office letter no. रांची/लोहरदगा/बाक्साइट/एफ.एम.सी पी.-03/2014-15,दिनांक:13/03/2015

Sir,

In exercise of the powers conferred by the sub-rule 2 of Rule 23C of Mineral Conservation & Development Rules, 1988; I hereby **approve** the above said Final Mine Closure Plan in respect of PAKHAR Bauxite mines of M/s HINDALCO Industries Ltd. over an area of 8.09 hectares in village-Pakhar, Lohardaga district of Jharkhand State, submitted under Rule 23C of MCDR, 1988. This approval is subject to the following conditions: -

- (i) that the Final Mine Closure Plan is approved without prejudice to any other laws applicable to the mine/lease area from time to time whether made by the Central Government, State Government or any other Authority.
- (ii) that this approval of the Final Mine Closure Plan does not, in any way, imply the approval of the Government in terms of any other provisions of the Mines & Minerals (Development & Regulation) Act, 1957 or the Mineral Concession Rules, 1960 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 and the rules made there under.
- (iii) that the Final Mine Closure Plan is approved without prejudice to any order or direction from any court of competent jurisdiction.
- (iv) that the Regional Office, Indian Bureau of Mines, Ranchi shall be informed after completion of activities of final mine closure as per proposal of the Final Mine Closure Plan.
- (v) that the Yearly report as required under Rule 23E(2) of MCDR, 1988 setting forth the extent of protection and rehabilitation works carried out as envisaged in the approved final mine closure plan and if there is any deviations, reasons thereof shall be submitted before 1<sup>st</sup> July of every year to the Regional office, Indian Bureau of Mines, Ranchi.

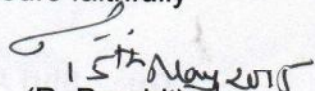
Contd...2

**No.: RAN/LOH/BX/FMCP-03/2014-15.**

- (iv) The financial assurance submitted for Rs.2,00,000/-(Two lacs only) is valid up to 31/03/2017. A new bank guarantee is to be submitted on or before its expiry i.e. 31/03/2017, if the rehabilitation proposal not completed by the time.

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


Yours faithfully

  
(R. Purohit)

Regional Controller of Mines

Copy forwarded for information to: -

1. **The Director (Mines),**  
Directorate of Mines and Geology,  
Government of Jharkhand,  
Nepal House Area, Doranda,  
Ranchi - 834 002.(Jharkhand), along with a copy of approved Final Mine Closure Plan. **It is requested to ensure that the determination of aforesaid lease is not accepted unless and until a certificate issued by the Indian Bureau of Mines under Rule 29A (2) of Mineral Concession Rules, 1960 to the effect that protective, reclamation and rehabilitative works as envisaged in the approved Final Mine Closure Plan are carried out.**
2. **The Director of Mines Safety**  
Ranchi Region  
CMPDIL-Campus  
3<sup>rd</sup> Floor, Old Building  
Kanke Road, Ranchi-834008  
along with a copy of approved Final Mine Closure Plan.
3. **Shri B.K.Mahapatra, RQP,**  
HINDALCO Industries Ltd.  
Court Road  
LOHARDAGA - 835 302.

  
(R. Purohit)

Regional Controller of Mines