

Ref No: HIL/LHD/GM (GEO)/MoEF/293

Date: 25.11.2018

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 April'18 to Sept'18.**

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 located in Lohardaga, Jharkhand for the period **April'18 to Sept'18**.

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

(Basudev Gangopadhyay)  
GM (Geology)

Enclosure: - As Above

Copy to: Member Secretary, JSPCB, Ranchi  
RO, JSPCB, Ranchi  
CPCB, Zonal Office, Kolkata  
<mef@ori.nic.in>, <mef@nic.in>, <mef.or@nic.in>, mef.or@nic.in

Compliance of conditions laid down in Environmental Clearance  
PAKHAR (8.09 ha) BAUXITE MINES  
Period: April'18- Sep'18  
J-11015/135 /2006-IA.II (M) Dated 24.1.2007

Sl No	Specific Conditions	Compliance Status
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	The Mine is not in operation since Nov 2014. During operation of mine implementations of the stipulated condition were full filled.
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.	The Mine is not in operation since Nov 2014. During operation of the mine land acquisition has been done following due procedure of law.
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 2018-19 due to exhaustion of mineral reserve.  Final Mine closure Plan has been approved by Indian Bureau of Mines. We are in process of implementation of Final Mine closure.
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 2018-19 due to exhaustion of mineral reserve. Mine is not in operation since Nov 2014.
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 2018-19 due to exhaustion of mineral reserve.
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 continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six monthly basis.	Mine is not in operation since Nov 2014. Winning of bauxite operation not carried out in this lease during the financial year 2018-19 due to exhaustion of mineral reserve.

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 2018-19 due to exhaustion of mineral reserve.</p> <p>The Mine is not in operation since Nov 2014.</p>
8	<p>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>	<p>Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created. Plantation done/Agriculture activity is going on reclaimed land. Entire land is utilized for meaningful purpose.</p>
9	<p>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>	<p>Winning of bauxite operation not carried out in this lease during the financial year 2018-19 due to exhaustion of mineral reserve. Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created.</p>
10	<p>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 (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.</p>	<p>Mine is not in operation since Nov 2014 due to exhaustion of reserves. FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created.</p>

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 2018-19 due to exhaustion of mineral reserve.  The Mine is not in operation since Nov 2014.
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 2018-19 due to exhaustion of mineral reserve.  The Mine is not in operation since Nov 2014.  FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created.
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 2018-19 due to exhaustion of mineral reserve.  The Mine is not in operation since Nov 2014.  FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created.
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 2018-19 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014. FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created.
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 2018-19 due to exhaustion of mineral reserve.  FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created.

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 2015-16. Winning of bauxite operation not carried out in this lease during the financial year 2018-19 due to exhaustion of mineral reserve. FMCP approved by IBM. Final Mine closure activity are completed. Mine Voids are reclaimed and rehabilitated. Water body is also created.
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 2018-19 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.
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.

### **General Conditions.**

Sl 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 2018-19 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.
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 2018-19 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.
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	Monitoring Reports is enclosed. Annexure 1.

	Board.	
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 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 2018-19 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.
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 2018-19 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.
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 2018-19 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.
8	Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Winning of bauxite operation not carried out in this lease during the financial year 2018-19 due to exhaustion of mineral reserve. The Mine is not in operation since Nov 2014.
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 2018-19 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. Annexure-3.

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 2018-19 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.
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. (Annexure-2). Currently, the Regional Office is located at Ranchi.
12	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Agreed.
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 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <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.



# 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 PLATEAU- ENVIRONMENTAL MONITORING REPORT**

**APRIL TO JUNE 2018**

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

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







# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

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	<b>AMBIENT AIR QUALITY</b>
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5	Pakhar Plateau Pakhar Mines(109.507 ha. Yatri Shed)
6	Pakhar Plateau- Pakhar Loading Area (109.507 ha.)
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3	Pakhar Mine (109.507 ha. Loading Area) Pakhar Plateau
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2	Loading point near Dumper at Pakhar Mines (109.507 ha. Minerals & Minerals)
	<b>DRINKING WATER</b>
1	Pakhar Mine-Near Canteen





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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0161/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<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 Plateau-Near Weigh Bridge	
<b>Sample collected on:</b> 06.06.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Weigh Bridge				
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	85.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	40.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	7.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	10.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	12.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.32
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0162/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<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 Plateau- Pakhar (115.13 ha.) Quarry No. 4	
<b>Sample collected on:</b> 06.06.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4				
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	76.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	43.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	8.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	11.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	13.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

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APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0163/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<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 Plateau-Near Office	
<b>Sample collected on:</b> 06.06.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Office				
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	70.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	8.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	10.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	12.5
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	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0164/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<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 Plateau- Pakhar Quarry 109.507 ha. (Near Shed)	
<b>Sample collected on:</b> 07.06.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Near Shed)				
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	83.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	39.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	8.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	10.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	11.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.35
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

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<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 Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)	
<b>Sample collected on:</b> 07.06.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)				
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	67.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	7.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	11.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	12.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.1
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	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0166/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<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 Plateau- 109.507 ha. Loading Area.	
<b>Sample collected on:</b> 07.06.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- 109.507 ha. 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	79.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	38.8
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	7.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	10.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.43
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.10
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

<b>Report no:</b> MEEPL/JULY0167/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<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> 06.06.2018	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Pakhar Near Office	dB (A) $L_{eq}$	75	64.7	70	56.4

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

<b>Report no: MEEPL/JULY0168/2018-19</b>	<b>Date: 14<sup>th</sup> July, 2018</b>
Sample described by customer: <b>Measurement of Noise</b>	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>06.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Pakhar Mines (115.13 ha.)	dB (A) $L_{eq}$	75	<b>61.3</b>	70	<b>54.1</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0169/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
Sample described by customer: <b>Measurement of Noise</b>	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>07.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Pakhar Mines (109.507 ha. Loading Area)	dB (A) $L_{eq}$	75	67.5	70	52.7

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

<b>Report no:</b> MEEPL/JULY0170/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
Sample described by customer: <b>Measurement of Noise</b>	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>07.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Pakhar Mines (109.507 ha. of Yatri Shed)	dB (A) $L_{eq}$	75	<b>64.0</b>	70	<b>56.2</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0171/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
Sample described by customer: <b>Measurement of Noise</b>	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>06.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Pakhar Quarry (Near Shed)	dB (A) $L_{eq}$	75	<b>61.7</b>	70	<b>53.5</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0172/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
Sample described by customer: <b>Measurement of Spot Noise</b>	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Spot Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>06.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result
Near Poklen at Pakhar Mines (115.13 ha.)	dB (A) $L_{eq}$	75	73.0

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0173/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
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> 07.06.2018	

Location/Identification	Unit	Limit (day)	Result
Pakhar Mines (109.507 ha. of Minerals & Minerals) Loading point near Dumper	dB (A) $L_{eq}$	75	72.6

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0174/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer :</b> DRINKING WATER-POTABILITY	
<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-POTABILITY	
<b>Marks on Sample:</b> Location: Near Canteen	
<b>Quantity:</b> 5 L X 2 No. PVC Can	
<b>Sample collected on:</b> 07.06.2018	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	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	0.20	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	7.4	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	389	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	49	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	52	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	7.4	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	3.9	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries:

Environmental Monitoring Report

APRIL – JUNE 2018

## Continuation Sheet

MEEPL/JULY0174/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.01	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.24	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.02	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	19.2	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.5	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	0.10	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	0.10	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	0.006	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.008	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-S2-C 4-175 & F 4-178







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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

## Continuation Sheet

MEEPL/JULY0174/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
<b>Microbiological Analysis</b>					
1	Total Colliforms	MPN/100mL	N.D	<1.1	APHA 22 <sup>nd</sup> Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	N.D	Absent	APHA 22 <sup>nd</sup> Ed. 2012, 9221-B & C, 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 (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α-HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
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	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	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	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

**Conclusion :** The Physical & Chemical Analysis report indicates that the water is not contaminated and potable.

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,  
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### **PAKHAR PLATEAU- ENVIRONMENTAL MONITORING REPORT**

**JULY TO SEPTEMBER 2018**

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

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





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**Hindalco Industries:**

**Environmental Monitoring Report**

**JULY – SEPTEMBER 2018**

## CONTENT

	LOCATION
	<b>AMBIENT AIR QUALITY</b>
1	Pakhar Plateau-Near Weigh Bridge
2	Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4
3	Pakhar Plateau- Near Office
4	Pakhar Plateau- Pakhar Quarry (109.507 ha. Near Shed)
5	Pakhar Plateau Pakhar Mines(109.507 ha. Yatri Shed)
6	Pakhar Plateau- Pakhar Loading Area (109.507 ha.)





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Hindalco Industries:

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0141/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<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 Plateau-Near Weigh Bridge	
<b>Sample collected on:</b> 05.09.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Weigh Bridge				
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	65
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32
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	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	7.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.1
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	2.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.40

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

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0142/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<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 Plateau- Pakhar (115.13 ha.) Quarry No. 4	
<b>Sample collected on:</b> 05.09.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4				
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	79
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	3.7
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	6.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.34
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.0
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.41

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Hindalco Industries:

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0143/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<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 Plateau-Near Office	
<b>Sample collected on:</b> 05.09.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Office				
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	72.7
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	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	11.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.26
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	2.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.35

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Hindalco Industries:

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0144/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<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 Plateau- Pakhar Quarry 109.507 ha. (Near Shed)	
<b>Sample collected on:</b> 06.09.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Near Shed)				
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	68
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	3.0
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	6.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.4

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Hindalco Industries:

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0145/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<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 Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)	
<b>Sample collected on:</b> 06.09.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)				
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	63
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	34
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	3.7
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	10.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
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	2.0
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	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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

Hindalco Industries:

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0146/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<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 Plateau- 109.507 ha. Loading Area.	
<b>Sample collected on:</b> 05.09.2018	

LOCATION / IDENTIFICATION: Pakhar Plateau- 109.507 ha. 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	80
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	41
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	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	7.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.38
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	1.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.10
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE



Annexure-2

**BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING April'18 to Sept'18**

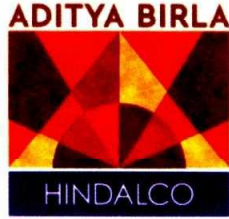
The composite cost during **April'18 to Sept'18** for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115,13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), 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) and Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud, Orsa pat(196.36 Ha), Bhusar (65.31 Ha)& Bimarla Bauxite Mines (134.52 Ha).

SI No	Description	Budget (in Rupees) FY 2018-19	Actual (in Rupees) (from April'18 to Sep'2018)
1	Pollution Control & Environment monitoring	1521000	8,82,300.00
2	Reclamation/ Back filing & Rehabilitation**	29200000	1,49,78,461.39
3	Green belt, Plantation & Water spraying arrangement	4500256	25,38,864.95
4	Rural Development	26025236	1,32,42,312.42

\*\*Part of OB removed cost.



(Basudev Gangopadhyay)  
Convenor (Quality & Environment)



Date: 03.04.17

### **Office Order**

Environmental Cell has been re-constituted at Pakhar Bauxite Mines (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. Narayan Pramanik (Geologist) - Coordinator
2. Mr. S.P.Jha (Mines Manager) - Member
3. Mr. Gaurang Agarwal (Mining Engineer) - Member
4. Mr. Sunil Kumar Pandey (Fore man) - Member
5. Mr. Amlendu Kumar Singh (Foreman ) - Member



**Basudev Gangopadhyay**  
Convenor (Quality & Environment)



## Annexure-4

Sl 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	106353	0.168	1.711	112376
3	Hisri (New) Bauxite Mine	14.55	100000	19-07-1981 to 31-03-2030	38172	0.742	0.467	29252
4	Kujam - I Bauxite Mine	80.87	150000	13-03-2006 to 12-03-2056	60550	1.64	1.37	40287
5	Kujam - II Bauxite Mine	157.38	300000	24-03-2006 to 23-03-2056	114325	4.68	3.78	122769
6	Amtipani Bauxite Mine	190.95	150000	13-03-2006 to 12-03-2056	83810	12	8	96051
7	Gurdari Bauxite Mine	584.19	325000	23-03-1985 to 22-03-2035	173295	4.6	8.59	251277
8	Shrengdag A Bauxite Mine	155.81	260000	16-10-1974 to 31-03-2030	108900	1.21	1.62	162637
9	Shrengdag B Bauxite Mine	140.07	100000	04-10-1978 to 31-03-2030	36100	1.21	0.72	46930
10	Jalim & Sanai Bauxite Mine	12.14	50000	16-10-1974 to 31-03-2030	18600	0.36	0.12	49104
11	Orsapat Bauxite Mine	196.36	200000	17-07-1986 to 16-07-2036	1470	0	0	2185



12	Chiro Kukud bauxite Mine	152.57	100000	29-01-1985 to 28-01-2035	1970	0.113	0	13168	
13	Pakhar (8.09)	8.09	80000	16-05-1973 to 31-03-2030	nil	nil	nil	nil	
14	Pakhar (35.12)	35.12	200000	17-04-1975 to 31-03-2030	nil	nil	nil	nil	
15	Pakhar (115.13)	115.13	300000	19-07-1996 to 31-03-2030	111995	1.01	0.65	70700	
<b>Minerals &amp; Minerals Limited</b>									
16	Pakhar (15.58)	15.58	60000	28-04-1965 to 31-03-2030	27475	0.35	0.15	26250	
17	Pakhar (109.507)	109.507	280000	26-07-2008 to 25-07-2058	151240	1.05	0.5	78750	
18	Bimarla Bauxite Mine	134.526	300000	18-07-2009 to 17-07-2059	89315	3.108	1.61	203116	

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



**Basudev Gangopadhyay**

**Convenor (Quality & Environment)**