



Ref No: HIL/LHD/GM (Geo)/MoEF/ 44/

Date: 28.11.2017

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 Apr'17 to Sept'17.**

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 **Apr'17 to Sept'17**.

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: Apr'17- Sept'17

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.	Implementations of the stipulated condition are fulfilled.
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.	Mining Lease is granted by the State Govt. after due consideration and Cabinet approval on recommendation of DC who is the competent authority to give permission for using the agricultural land for non-agricultural purpose.
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.	Winning of bauxite operation not carried out in this lease during the financial year 2017-18 due to exhaustion of mineral reserve.  Final Mine closure Plan has been approved by Indian Bureau of Mines. We are in the 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 2017-18 due to exhaustion of mineral reserve.
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.	Winning of bauxite operation not carried out in this lease during the financial year 2017-18 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.	Winning of bauxite operation not carried out in this lease during the financial year 2017-18 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 the financial year 2017-18 due to exhaustion of mineral reserve.</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>During 2017-18, total 9800 plantation carried out around this lease within Pakhar plateau. Plantation has already been completed during FMCP period.</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>We are in the process of final mine closure.</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>It is being monitored. Monitoring report is enclosed as Annexure-1.</p>
11	<p>Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.</p>	<p>We are in the process of final mine closure.</p>
12	<p>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</p>	<p>We are in the process of final mine closure. Winning of bauxite operation not carried out in this lease during the financial year 2017-18</p>

	vehicles should be covered with a tarpaulin and shall not be overloaded.	due to exhaustion of mineral reserve.
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 2017-18 due to exhaustion of mineral reserve.
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 the financial year 2017-18 due to exhaustion of mineral reserve.
15	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	Winning of bauxite operation not carried out in this lease during the financial year 2017-18 due to exhaustion of mineral reserve.
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	Winning of bauxite operation not carried out in this lease during the financial year 2017-18 due to exhaustion of mineral reserve.
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 2017-18 due to exhaustion of mineral reserve.
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.	Final Mine closure plan duly approved by Indian Bureau of Mines.

## 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 2017-18 due to exhaustion of mineral reserve.
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 2017-18 due to exhaustion of mineral reserve.
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 locations have been fixed after due consultation of SPCB and regular monitoring is being carried out. Monitoring Reports is enclosed.
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.	Regular monitoring is being carried out. 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 2017-18 due to exhaustion of mineral reserve. 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 2017-18 due to exhaustion of mineral reserve.

7	<p>Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to 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.</p>	<p>Winning of bauxite operation not carried out in this lease during the financial year 2017-18 due to exhaustion of mineral reserve.</p>
8	<p>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.</p>	<p>winning of bauxite operation not carried out in this lease during the financial year 2017-18 due to exhaustion of mineral reserve.</p>
9	<p>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.</p>	<p>Winning of bauxite operation not carried out in this lease during the financial year 2017-18 due to exhaustion of mineral reserve.</p> <p>We have Environment Management Cell for our Pakhar Group of Mines. The same is looking after Environment issues of this Mine. Annexure-3.</p>
10	<p>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.</p>	<p>Winning of bauxite operation not carried out in this lease during the financial year 2017-18 due to exhaustion of mineral reserve. This was an operational mine and hence, provision related to financial closure not applicable.</p>
11	<p>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.</p>	<p>Statement of budgetary provision and actual expenses for environmental protection measure is enclosed. It is once again reiterated that the funds so earmarked shall not be diverted for any other purposes other than it is committed at the beginning of the financial year. (Annexure-2).</p>
12	<p>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.</p>	<p>Agreed.</p>

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.
	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.	Complied.
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.

Regd. Office: 2/37, Sarvapriya Vihar, Near IIT Gate, New Delhi-110016  
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Gokhale Road (North), Dadar (West), Mumbai 400 028. Tel: +91 22 24376520/5572  
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 PLATEAU- ENVIRONMENTAL MONITORING REPORT

JULY TO SEPTEMBER 2017

For Mahabal Enviro Engineers Pvt. Ltd.  
For Mahabal Enviro Eng. Pvt. Ltd.

  
Vijay Pandey  
Authorised Signatory  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2017

## CONTENT

	LOCATION
	<b>AMBIENT AIR QUALITY</b>
1	Pakhar Plateau- Near Weigh Bridge
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5	Pakhar Plateau Pakhar Mines(109.507 ha, Yatri Shed)
6	Pakhar Plateau- Pakhar Loading Area (109.507 ha.)
	<b>SURFACE WATER</b>
1	Pakhar Plateau





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Hindalco Industries:

Environmental Monitoring Report JULY - SEPTEMBER 2017

Report no: MEEPL/OCT0129/2017-18 Date: 24<sup>th</sup> October 2017

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 Plateau-Near Weigh Bridge

Sample collected on: 18.09.2017

### LOCATION / IDENTIFICATION: Pakhar Plateau-Near Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 $\mu\text{m}$ ) $\text{PM}_{10}$	$\mu\text{g}/\text{m}^3$	100	63.9
02.	Particulate Matter (size less than 2.5 $\mu\text{m}$ ) $\text{PM}_{2.5}$	$\mu\text{g}/\text{m}^3$	60	30.7
03.	Sulphur Dioxide ( $\text{SO}_2$ )	$\mu\text{g}/\text{m}^3$	80	4.7
04.	Nitrogen Dioxide ( $\text{NO}_2$ )	$\mu\text{g}/\text{m}^3$	80	8.4
05.	Ammonia ( $\text{NH}_3$ )	$\mu\text{g}/\text{m}^3$	400	14.3
06.	Ozone ( $\text{O}_3$ )	$\mu\text{g}/\text{m}^3$	180	13.9
07.	Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	02	0.40
08.	Lead (Pb)	$\mu\text{g}/\text{m}^3$	1.0	0.03
09.	Nickel (Ni)	$\text{ng}/\text{m}^3$	20	3.5
10.	Arsenic (As)	$\text{ng}/\text{m}^3$	06	2.42
11.	Benzene ( $\text{C}_6\text{H}_6$ )	$\mu\text{g}/\text{m}^3$	05	2.10
12.	Benzo (a) Pyrene	$\mu\text{g}/\text{m}^3$	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.  
For Mahabal Enviro Eng. Pvt. Ltd

Viay Pandey  
Authorised Signatory  
SENIOR EXECUTIVE



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Hindalco Industries:

Environmental Monitoring Report

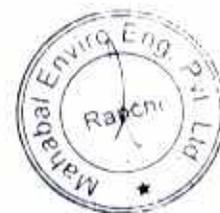
JULY - SEPTEMBER 2017

Report no: MEEPL/OCT0130/2017-18	Date: 24 <sup>th</sup> October, 2017
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lotardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4	
Sample collected on: 18.09.2017	

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	68.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	8.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	12.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	13.0
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	3.1
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	0.47

For Mahabal Enviro Engineers Pvt. Ltd.  
For Mahabal Enviro Eng. Pvt. Ltd.

  
V. Jay Prasad  
Authorised Signatory  
SENIOR EXECUTIVE



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(600 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room. Near J B Sawani Bus Stop)  
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**Hindalco Industries:**

**Environmental Monitoring Report**

**JULY – SEPTEMBER 2017**

Report no: MEEPL/OCT0131/2017-12	Date: 24 <sup>th</sup> October, 2017
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 Plateau-Near Office	
Sample collected on: 18.09.2017	

### LOCATION / IDENTIFICATION: Pakhar Plateau-Near Office

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 $\mu\text{m}$ ) PM <sub>10</sub>	$\mu\text{g}/\text{m}^3$	100	61.5
02.	Particulate Matter (size less than 2.5 $\mu\text{m}$ ) PM <sub>2.5</sub>	$\mu\text{g}/\text{m}^3$	60	30.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	80	4.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	80	8.3
05.	Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	400	12.4
06.	Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	180	13.8
07.	Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	02	0.40
08.	Lead (Pb)	$\mu\text{g}/\text{m}^3$	1.0	0.02
09.	Nickel (Ni)	$\text{ng}/\text{m}^3$	20	3.2
10.	Arsenic (As)	$\text{ng}/\text{m}^3$	06	2.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	$\mu\text{g}/\text{m}^3$	05	2.1
12.	Benzo (a) Pyrene	$\mu\text{g}/\text{m}^3$	01	0.32

For Mahabal Enviro Engineers Pvt. Ltd.  
For Mahabal Enviro Eng. Pvt. Ltd.

  
Authorized Signatory  
Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2017

Report no: MEEPL/OCT0132/2017-18

Date: 24<sup>th</sup> October, 2017

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

Remarks on Sample: Location: Pakhar Plateau- Pakhar Quarry 10<sup>o</sup> 50<sup>m</sup> ha. (Near Shed)

Sample collected on: 19.09.2017

### 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	66.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	30.7
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	8.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	12.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	14.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.40
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	3.2
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	2.10
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.  
For Mahabal Enviro Eng. Pvt. Ltd.

Vijay Pandey

Authorised Signatory  
SENIOR EXECUTIVE





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**Hindalco Industries:**

**Environmental Monitoring Report**

**JULY - SEPTEMBER 2017**

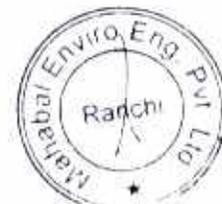
Report no: MEEPL/OCT0133/2017-18	Date: 24 <sup>th</sup> October, 2017
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Remarks on sample: Location: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)	
Sample collected on: 19.09.2017	

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	52.5
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	4.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	8.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	12.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	14.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.37
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	3.0
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	2.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.45

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

For Mahabal Enviro Eng. Pvt. Ltd.

Vijay Kumar  
Authorised Signatory  
**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: mahabalaranchi@gmail.com

Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2017

Report no: MEEPL/OCT0134/2017-18

Date: 24<sup>th</sup> October, 2017

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 Plateau- 109.507 ha. Loading Area.

Sample collected on: 19.09.2017

### 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	57.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	26.8
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	7.1
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	13.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.41
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	3.0
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.12
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.50

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**Hindalco Industries: Environmental Monitoring Report JULY - SEPTEMBER 2017**

Report no: MEEPL/OCT0135/2017-18

Date: 24<sup>th</sup> October, 2017

Sample described by customer : SURFACE-WATER

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: SURFACE WATER

Marks on Sample: Location: Pakhar Plateau

Quantity: 5 L X 2 No. PVC Can

Sample collected on: 18.09.2017

Sr. No.	Parameters	Unit	Result	Acceptable Limit (Is 3025, 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	--	7.5	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	482	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO <sub>3</sub> )	mg/l	49	700 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-G, 4-69
9	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	43	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	47	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-b, 4-72
11	Sulphate (as SO <sub>4</sub> )	mg/l	32.9	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.20	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.1	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84





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Hindalco Industries:

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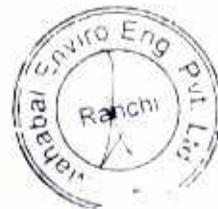
Continuation Sheet  
MEEPL/OCT0135/2017-18

Repo: no: MEEPL/OCT0135/2017-18				Date: 24 <sup>th</sup> October, 2017	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.12	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	11.3	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.08	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
	Zinc (as Zn)	mg/l	0.03	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-23
22	Mercury (as Hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
23	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CN, C & 4-39 & 4-44
24	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
25	Dissolved Oxygen	mg/l	7.5	7-8	APHA 20 <sup>th</sup> ED. Method 4500-DO g

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**BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2016-17**

The composite cost during the year 2017-18 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 (80.87 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud(152.57 Ha), Orsa pat(196.36 Ha), Bhusar (65.31 Ha)& Bimarla Bauxite Mines (134.52 Ha).

SI No	Description	Budget (in Rupees) FY 2017-18	Actual (in Rupees) FY 2017-18 (from April'17 to Sep'2017)
1	Pollution Control & Environment monitoring	1316000.00	651832.00
2	Reclamation/ Back filing & Rehabilitation**	300000000.00	131262375.00
3	Green belt, Plantation & Water spraying arrangement	3400000.00	3373300.00
4	Rural Development	40000000.00	18500000.00

\*\*Part of OB removed cost.



(Basudev Gangopadhyay)  
Convenor (Quality & Environment)



*Amrendu Kumar Singh*

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

## PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-17 to Sep-17

NAME OF THE MINES	MINING LEASE AREA (IN HA)	MINED OUT AREA (HA)	BACK FILLED AREA (HA)	PRODUCTION (In MT)	OVERBURDEN (In Cu.M)
Shrengdag Bauxite	155.81	2.57	2.00	148229.00	141538.00
Gurdari Bauxite Mines	584.19	8.10	4.70	175860.00	391707.00
Jalim & Sanai	12.14	1.25	0.50	25137.00	16365.00
Serangdag	140.06	0.00	0.00	0.00	0.00
Pakhar Buxite Mines	115.13	1.52	1.89	137420.00	166565.00
Pakhar Buxite Mines	8.09	0.00	0.00	0.00	0.00
Kujam-I	80.87	1.87	1.95	67925.00	108182.00
Kujam-II	157.38	3.32	3.70	132480.00	269516.00
Amitipani	190.95	4.70	3.17	102545.00	138980.00
Chiro-Kukud	152.57	1.73	1.28	41460.00	64089.00
Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0.00
Hisri New	14.55	1.05	0.91	35561.00	44239.00
Bhusar	65.31	0.16	1.80	63239.00	88532.00
Bagru	75.41	0.00	0.00	0.00	0.00
<b>Minerals &amp; Minerals Limited</b>					
Pakhar Buxite Mines	109.51	1.50	1.70	136490.00	152916.00
Pakhar Buxite Mines	15.58	0.20	0.00	0.00	2716.00
Bimarla Bauxite Mines	134.52	4.71	5.86	67850.00	164820.00



(Basudev Gangopadhyay)  
Convenor (Quality & Environment)