

Ref No: HIL/LHD/GM (GEO)/MoEF/ 284

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 Kujam-I Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April'18 to Sept'18.**

Ref: Environmental Clearance letter no J-11015/240/2005-IA II(M) dated 14<sup>th</sup> August 2006

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Kujam-I (80.87 Ha)** Bauxite Mining project of M/s Hindalco located in Gumla, 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**

**KUJAM - I BAUXITE MINES (80.87 Ha)**

**Period: April'18- Sep'18**

**MoEF Environment Clearance letter Ref: No. J-11015/ 240/2005-IA.II (M) dated 14 Aug'06**

<b>Sl No</b>	<b>Conditions</b>	<b>Compliance Status</b>
<b>Specific Conditions</b>		
1	All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.	Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time. Existing consent to operate is valid upto 31.12.2020. Production of bauxite are within limits specified in consent to operate.
2	The mining operations shall not intersect groundwater table. Prior approval of the MoEF and CGWA shall be obtained for mining below water table.	The mining operation confined within shallow depth (20 m max) and not intersected ground water. EC also mentions ground is at depth of 80-100 mts, thus there is no chance to intersect ground water table during mining operation. In future also, working zone will be restricted to above ground water table.
3	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 land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Land Owner) for 20 years with permission of State Govt with provision of returning the land as per as per the norms set by D.C. .The compensation and facilities are being provided as per norms set in agreement. Thus the provision is taken care off.

4	Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Top soil is being stacked separately for reclamation and rehabilitation of mined out areas with progress of Mining.
5	The waste generated in the initial period shall be dumped temporarily and backfilled in the mined out area. There shall be no permanent external OB dump in the project area. Concurrent backfilling should start from the fifth year onwards. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.	<p>Concurrent backfilling is being done in mined out pit.</p> <p>Afforestation is being carried out progressively over reclaimed area for rehabilitation.</p> <p>The detail of back filling is attached here with. Annexure 4.</p>
6	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drain (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 settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.	<p>Adequate capacity sump, catch drains, siltation ponds, garland drains are being constructed in commensuration with progress of mining activities.</p> <p>To obviate surface run off going out of our lease hold, we have arrangement of water harvesting pond through which during mansoon water is challnelised into water harvesting pond where are silt are getting arrested.</p>
7	Plantation shall be raised in an area of 43.5 ha including a green belt of adequate width by planting the native species around the ML area, roads, etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.	Plantation is being carried out as per with progress of mining. During year 2018 around 2220 nos saplings has been planted.

8	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>We are in process of implementation of suitable conservation measures to augment ground water resources in area in consultation with Regional Director, Central Ground Water Board.</p> <p>Conservation measures to augment water viz. check dams, contour bunds, gullies, rainwater harvesting pond in mining lease area is so designed that all rain water within lease are collected in to pit.</p>
9	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>The EC mentions ground is at depth of 80-100 mts</p> <p>We are not using ground water for any mining purpose.</p> <p>Drinking water quality report attached. Annexure 1.</p>
10	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	<p>Water is being drawn from rain water harvesting pond located at mined out pit.</p> <p>We are not using ground water/natural water resources for mining purpose.</p>
11	The project proponent shall monitor the spring discharge on long term basis (at least one major spring) both in terms of quantity and quality of water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.	<p>Surface water quality report enclosed. There is no spring within the mining lease.</p>
12	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	<p>Regular maintenance of vehicles are undertaken to minimize vehicular emission.</p> <p>All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.</p>

13	Drills should either be operated with dust extractors or should be equipped with water injection system	Wet drilling is done in drill holes intermittently for dust suppression by pumping water.
14	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented	Blasting time is fixed during Lunch time i.e. 1.00 PM -2.00 PM.  Controlled blasting method is in practice. All efforts are being taken to mitigate impact of blasting.
15	Consent to operate should be obtained from SPCB prior to start of production of mine.	Consent to operate obtained from JSPCB prior to start of production from Mines, which is being renewed by JSPCB periodically.  Existing consent to Operate is valid upto 31 .12.2020
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	There is no effluent discharge from Mine; hence ETP has not been installed. The sewage water from domestic uses is being collected through individual septic tanks & soak pits. Sullage is collected to an integrated soak pit.
17	Land oustees and land loser/affected people should be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of project Affected Families (NPRR), 2003	Land acquisition activities is done as per CNT Act and with permission of competent authority i.e. concerned Deputy Commissioner (D.C.) and consent of Raiyat (Land Owner) for 20 years period.  The land compensation and other related benefit is being provided as per norms set out in land purchase agreement with consent of DC.
18	The higher benches of the excavated void to be converted into water reservoir shall be terraced and afforested to stabilize the slopes. Peripheral fencing shall be done along the excavated area.	Is being and will be implemented with progress of mining. Water harvesting pond is provided. Fencing provided as required.
19	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Final mine closure plan will be submitted at appropriate time. Presently we are having approved progressive mine closure plan. Based on present resource estimate, and peak rated production capacity mentioned in EC, the tentative balance life is around 15-

	16 years. However, after completion of further detailed exploration, resources estimate vis-à-vis balance life of the mine may change based on final resource estimate, EC capacity and cut-off grade at that point of time.
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### **General Conditions.**

<b>Sl No</b>	<b>Conditions</b>	<b>Compliance Status</b>
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Noted and Being adhered to.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	Bauxite production are in line with calendar plan. Annexure-4.
3	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife departments.	Suitable conservation measures implemented for protection of flora & fauna is being implemented as under:  1) Permanent pillars are established within the mine lease area.  2) Maintenance of the forest road  3) Ensured necessary air and noise pollution control measures.  4) Daily water sprinkling is being carried out on the forest road  5) Transportation is done only in day time.
4	Four ambient air quality-monitoring stations 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 meteorological 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 is enclosed as Annexure-1.

5	Data on ambient air quality (RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> ) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	Monitoring Reports is enclosed as Annexure-1.
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water spraying arrangement on haul roads, loading and unloading and at transfer points is being carried out on regular basis.
7	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	PPE's provided to workers at noise prone areas
8	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no industrial waste water.
9	Personnel working in dusty areas should wear protective respiratory devices and they should also be 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.	PPE's provided to workers at dusty areas Periodic health checks up/ occupational health checkup are in practice for workers at Mine.
10	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization	Separate Environmental Management Cell (EMC) already formed with qualified personals and informed. (enclosed as Annexure-3)
11	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Date of financial closure is not applicable since it is operating mine.
12	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.	Year wise expenditure is being reported to the Ministry and its Regional Office located at Ranchi. Copy enclosed as Annexure-2.

13	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.	Vide Point no. 11 above.
14	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.
15	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom and suggestion / representation has been received while processing the proposal.	Complied
16	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	Displayed.
17	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the 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 <b>http://envfor.nic.in</b> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. (Documents already submitted).







# 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

### **NETARHAT PLATEAU- ENVIRONMENTAL MONITORING REPORT**

**APRIL TO JUNE 2018**

**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

APRIL – JUNE 2018

## CONTENT

	LOCATION
	<b>AMBIENT AIR QUALITY</b>
1	Gurdari Mines Quarry 6B
2	Gurdari Mines Weigh Bridge
3	Kujam II Weigh Bridge
4	Kujam II Quarry
5	Kujam I Quarry I
6	Kujam I Quarry II
7	Amtipani Mines Near Office
8	Amtipani Mines Near Quarry
	<b>NOISE LEVEL</b>
1	Gurudari Pit (584.19 ha. ) Netarhat Plateau
2	Kujam-I (80.87 ha. ) Netarhat Plateau
3	Kujam-II (157.38 ha. ) Netarhat Plateau
4	Amtipani Mines Pit
	<b>SPOT NOISE LEVEL</b>
1	Poclain at Haralagda Pit
2	Compressor Near Quarry 4 at Kujam-II
3	Drill Rig at Working Pit Kujam-I
	<b>DRINKING WATER</b>
1.	Gurdari Pit (584.19 ha.)
2.	Amtipani Camp.





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

Hindalco Industries :

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0201/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Gurdari Mines Quarry 6B</b>	
Sample collected on: <b>10.06.2018</b>	

LOCATION / IDENTIFICATION: Gurdari Mines Quarry 6B				
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	71.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	33.9
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	6.9
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	12.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.33
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.8
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Mobile No: +91 9431.102.102 / +91 9955.358.262,  
E-mail: [mahabalanranchi@gmail.com](mailto:mahabalanranchi@gmail.com)

Hindalco Industries :

Environmental Monitoring Report

APRIL – JUNE 2018

Report no: MEEPL/JULY0202/2018-19

Date: 14<sup>th</sup> July, 2018

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: *Gurdari Mines - Weigh Bridge*

Sample collected on: *10.06.2018*

### LOCATION / IDENTIFICATION: Gurdari Mines 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	79.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	38.5
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	7.7
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	12.2
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	2.4
10.	Arsenic (As)	µg/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	0.30

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Hindalco Industries :

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0203/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam II Weigh Bridge</b>	
Sample collected on: <b>11.06.2018</b>	

LOCATION / IDENTIFICATION: Kujam II 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	73.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	31.4
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	6.5
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	12.0
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	2.5
10.	Arsenic (As)	µg/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	0.33

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Hindalco Industries :

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0204/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam II Quarry</b>	
Sample collected on: <b>11.06.2018</b>	

LOCATION / IDENTIFICATION: Kujam II Quarry				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	<b>100</b>	<b>80.3</b>
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	<b>60</b>	<b>37.6</b>
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>5.2</b>
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>6.4</b>
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	<b>400</b>	<b>11.8</b>
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	<b>180</b>	<b>12.3</b>
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	<b>02</b>	<b>0.38</b>
08.	Lead (Pb)	µg/m <sup>3</sup>	<b>1.0</b>	<b>0.03</b>
09.	Nickel (Ni)	µg/m <sup>3</sup>	<b>20</b>	<b>2.7</b>
10.	Arsenic (As)	µg/m <sup>3</sup>	<b>06</b>	<b>2.0</b>
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	<b>05</b>	<b>2.3</b>
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	<b>01</b>	<b>0.30</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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

Hindalco Industries :

Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0205/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam I Quarry I</b>	
Sample collected on: <b>11.06.2018</b>	

LOCATION / IDENTIFICATION: Kujam I Quarry I				
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	84.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	42.0
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	8.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	11.3
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	12.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.40
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.9
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	3.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.35

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

APRIL - JUNE 2018

<b>Report no:</b> MEEPL/JULY0206/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam I Quarry II</b>	
Sample collected on: <b>11.06.2018</b>	

LOCATION / IDENTIFICATION: Kujam I Quarry II				
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	70.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	33.4
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	7.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	10.3
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	11.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.36
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	3.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.40

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SENIOR EXECUTIVE





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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)

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APRIL - JUNE 2018

<b>Report no:</b> MEEPL/JULY0207/2018-19	<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: <i>Amtipani Mines Near Office</i>	
<b>Sample collected on:</b> 10.06.2018	

LOCATION / IDENTIFICATION: Near Amtipani Mines 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	77.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	36.6
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	7.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	10.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	13.4
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)	µg/m <sup>3</sup>	20	2.4
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.34

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SENIOR EXECUTIVE





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## 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)

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APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0208/2018-19	<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: <i>Amtipani Mines – Near Quarry</i>	
<b>Sample collected on:</b> 10.06.2018	

LOCATION / IDENTIFICATION: Amtipani Mines Near Quarry				
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	82.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	36.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	7.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	9.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	12.8
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	2.6
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.30

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SENIOR EXECUTIVE





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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)

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APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0209/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> Measurement of Noise	
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>10.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Gurdari Pit (584.19 ha.) Netarhat Plateau	dB (A) <sub>Leq</sub>	75	<b>62.7</b>	70	<b>55.2</b>

For Mahabal Enviro Engineers Pvt. Ltd.

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## 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)

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Environmental Monitoring Report

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0210/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> Measurement of Noise	
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>11.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Kujam-I (80.87 ha. ) Netarhat Plateau	dB (A) $L_{eq}$	75	68.7	70	57.0

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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)

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APRIL – JUNE 2018

Report no: MEEPL/JULY0211/2018-19

Date: 14<sup>th</sup> July, 2018

Sample described by customer : Measurement of Noise

Client Name: **Hindalco Industries Limited**

Client Address: **Lohardaga**

Postal Code: **835203**

State: **Jharkhand**

Country: **India**

Sample Description: **Measurement of Noise**

Sampling Method: **Instrumental, using Sound level Metter**

Data Collection Date: **11.06.2018**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Kujam-II (157.38 ha.) Netarhat Plateau	dB (A) $L_{eq}$	75	71.1	70	59.5

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## 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)

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<b>Report no:</b> MEEPL/JULY0212/2018-19	<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> 10.06.2018	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Amtipani Mines Pit	dB (A) $L_{eq}$	75	65.7	70	59.1

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SENIOR EXECUTIVE





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## 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)

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<b>Report no: MEEPL/JULY0213/2018-19</b>	<b>Date: 14<sup>th</sup> July, 2018</b>
Sample described by customer: <b>Measurement of Spot Noise</b>	
Client Name: <b>Hindalco Industries Limited</b>	
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>10.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result
<b>Gurudari Mines (584.19 ha.)</b> Poclain at Haralagda Pit	dB (A) $L_{eq}$	<b>75</b>	<b>73.5</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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## 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)

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APRIL – JUNE 2018

Report no: MEEPL/JULY0214/2018-19

Date: 14<sup>th</sup> July, 2018

Sample described by customer : Measurement of Spot Noise

Client Name: **Hindalco Industries Limited**

Client Address: **Lohardaga**

Postal Code: **835203**

State: **Jharkhand**

Country: **India**

Sample Description: **Measurement of Spot Noise**

Sampling Method: **Instrumental, using Sound level Metter**

Data Collection Date: **11.06.2018**

Location/Identification	Unit	Limit (day)	Result
Kujam-II Mines (157.38 ha.) Compressor at Quarry No.4	dB (A) $L_{eq}$	75	74.3

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Vijay Pandey  
SENIOR EXECUTIVE





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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)

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<b>Report no: MEEPL/JULY0215/2018-19</b>	<b>Date: 14<sup>th</sup> July, 2018</b>
<b>Sample described by customer : Measurement of Spot 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 Spot Noise</b>	
Sampling Method: <b>Instrumental, using Sound level Metter</b>	
Data Collection Date: <b>11.06.2018</b>	

Location/Identification	Unit	Limit (day)	Result
<b>Kujam-I Mines (80.87 ha.)</b> Drill rig at Working Pit	dB (A) $L_{eq}$	<b>75</b>	<b>73.9</b>

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





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## 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)

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APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0216/2018-19	<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: Drinking Water of Gurdari Pit (584.19 ha.)	
<b>Sample collected on:</b> 10.06.2018	

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	0.12	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	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	358	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	37	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	43	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	11.7	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	7.1	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.22	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO3-E, 4-125





# 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)

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15	Fluoride (as F)	mg/l	0.12	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.09	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	12.9	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.9	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-NH3-F, 4-115
20	Iron (as Fe)	mg/l	0.14	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	0.04	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	N.D	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	<0.01	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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## 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)

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## Continuation Sheet

MEEPL/ JULY0216/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
<b>Microbiological Analysis</b>					
1	Total Coliforms	MPN/100mL	N.D	Absent	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	N.D	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	Б- 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	Methoysl 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**  
**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

APRIL – JUNE 2018

<b>Report no:</b> MEEPL/JULY0217/2018-19	<b>Date:</b> 14 <sup>th</sup> July, 2018
<b>Sample described by customer:</b> DRINKING WATER-POTABILITY	
<b>Client Name:</b> <i>Hindalco Industries Limited</i>	
<b>Client Address:</b> <i>Lohardaga</i>	
<b>Postal Code:</b> <i>835203</i>	
<b>State:</b> <i>Jharkhand</i>	
<b>Country:</b> <i>India</i>	
<b>Sample Type:</b> <i>DRINKING WATER-POTABILITY</i>	
<b>Marks on Sample:</b> Location: <i>Drinking Water of Amtipani Camp</i>	
<b>Sample collected on:</b> <i>10.06.2018</i>	

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	0.14	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	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	390	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	41	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	49	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	12.5	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	7.5	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.28	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO3-E, 4-125





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

Hindalco Industries :

Environmental Monitoring Report

APRIL – JUNE 2018

## Continuation Sheet

MEEPL/ JULY0217/2018-19

15	Fluoride (as F)	mg/l	0.12	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.09	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	16.5	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	3.1	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-NH3-F, 4-115
20	Iron (as Fe)	mg/l	0.13	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	0.05	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	N.D	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	<0.01	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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APRIL - JUNE 2018

## Continuation Sheet

MEEPL/ JULY0217/2018-19

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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**  
**SENIOR EXECUTIVE**







# 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

### **NETARHAT PLATEAU- ENVIRONMENTAL MONITORING REPORT**

**JULY TO SEPTEMBER 2018**

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

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





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

Hindalco Industries :

Environmental Monitoring Report

JULY – SEPTEMBER 2018

## CONTENT

	LOCATION
	<b>AMBIENT AIR QUALITY</b>
1	Gurdari Mines Quarry 6B
2	Gurdari Mines Weigh Bridge
3	Kujam II Weigh Bridge
4	Kujam II Quarry
5	Kujam I Quarry I
6	Kujam I Quarry II
7	Amtipani Mines Near Office
8	Amtipani Mines Near Quarry





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

Hindalco Industries :

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0163/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Gurdari Mines Quarry 6B</b>	
Sample collected on: <b>10.09.2018</b>	

LOCATION / IDENTIFICATION: Gurdari Mines Quarry 6B				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	<b>100</b>	<b>60</b>
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	<b>60</b>	<b>28</b>
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>2.8</b>
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>3.6</b>
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	<b>400</b>	<b>6.2</b>
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	<b>180</b>	<b>10.0</b>
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	<b>02</b>	<b>0.30</b>
08.	Lead (Pb)	µg/m <sup>3</sup>	<b>1.0</b>	<b>0.03</b>
09.	Nickel (Ni)	µg/m <sup>3</sup>	<b>20</b>	<b>2.3</b>
10.	Arsenic (As)	µg/m <sup>3</sup>	<b>06</b>	<b>2.1</b>
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	<b>05</b>	<b>2.0</b>
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	<b>01</b>	<b>0.30</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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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

Report no: MEEPL/OCT0164/2018-19

Date: 10<sup>th</sup> October, 2018

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: *Gurdari Mines - Weigh Bridge*

Sample collected on: *10.09.2018*

## LOCATION / IDENTIFICATION: Gurdari Mines 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	73
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	3.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.8
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	9.5
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)	µg/m <sup>3</sup>	20	2.1
10.	Arsenic (As)	µg/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	0.30

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JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0165/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam II Weigh Bridge</b>	
Sample collected on: <b>10.09.2018</b>	

### LOCATION / IDENTIFICATION: Kujam II 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	66
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25
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	7.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.38
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.0
10.	Arsenic (As)	µg/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	0.33

For Mahabal Enviro Engineers Pvt. Ltd.

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Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0166/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam II Quarry</b>	
Sample collected on: <b>10.09.2018</b>	

LOCATION / IDENTIFICATION: Kujam II Quarry				
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	74
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	3.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	7.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.32
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	µg/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	0.30

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Hindalco Industries :

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0167/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam I Quarry I</b>	
Sample collected on: <b>11.09.2018</b>	

LOCATION / IDENTIFICATION: Kujam I Quarry I				
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	36
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	4.3
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	9.2
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)	µg/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	3.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.35

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/OCT0168/2018-19	<b>Date:</b> 10 <sup>th</sup> October, 2018
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
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: Location: <b>Kujam I Quarry II</b>	
Sample collected on: <b>11.09.2018</b>	

LOCATION / IDENTIFICATION: Kujam I Quarry II				
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	29
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.32
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	3.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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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/OCT0169/2018-19	<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: <i>Amtipani Mines Near Office</i>	
<b>Sample collected on:</b> 11.09.2018	

LOCATION / IDENTIFICATION: Near Amtipani Mines 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	70.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	31.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	8.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	11.2
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)	µg/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.34

For Mahabal Enviro Engineers Pvt. Ltd.

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

Hindalco Industries :

Environmental Monitoring Report

JULY – SEPTEMBER 2018

<b>Report no:</b> MEEPL/OCT0170/2018-19	<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: <i>Amtipani Mines – Near Quarry</i>	
<b>Sample collected on:</b> 11.09.2018	

LOCATION / IDENTIFICATION: Amtipani Mines Near Quarry				
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	32
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	7.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.37
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.30

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**

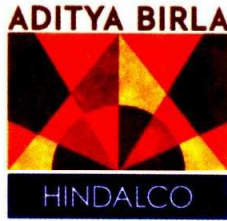
The composite cost during **April'18 to Sept'18** for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely 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)



Annexure - 3

Date: 03.04.17

### Office Order

Environmental Cell has been re-constituted at Kujam I Bauxite Mines (Area 80.87 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. Shambhu Sharan Vashistha- Manager (Coordinator)
2. Mr. Ratikant Behera- Geologist (Member)
3. Mr. Bhanu Kumar- Mining mate (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)**