

HIL/LHD/ENV/MoEF/

Date: 27.11.2019

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'19 to September'19.

**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 Industries Limited** located in Gumla, Jharkhand for the period April'19 to September'19.

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

  
(Basudev Gangopadhyay)  
GM (Geology & Environment)

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'19- September'19**

**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. Productions of bauxite are within limits specified in consent to operate.
2	The mining operations shall not intersect ground water table. Prior approval of the MoEF and CGWA shall be obtained for mining below water table.	<p>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.</p> <p>We undertake that no mining is/was carried out below ground water table and the same status quo will be maintained in future also.</p>
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.	Concurrent backfilling is being done in mined out pit. No permanent external OB dump is in the project area. Afforestation is being carried out progressively over reclaimed area for rehabilitation.  The detail of back filling is attached here with as Annexure - 4
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.	Adequate capacity sump, catch drains, siltation ponds, garland drains are being constructed in commensuration with progress of mining activities.  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.
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 2019-20 around 2237 nos. of saplings have been planted. Total 2.15 ha area has been planted till date.

8	<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 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. 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> <p>It may be noted that there is no chance to intersect ground water table during mining operation.</p>
9	<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>The EC mentions ground is at depth of 80-100 mts</p> <p>We are not using ground water for any mining purpose. Drinking water quality report attached as Annexure 1</p>
10	<p>Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.</p>	<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	<p>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>	<p>Surface water quality report enclosed. There is no spring within the mining lease.</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 in transportation of mineral. The vehicles should</p>	<p>Regular maintenance of vehicles are undertaken to minimize vehicular emission.</p> <p>All measures are being taken to</p>

	be covered with a tarpaulin and shall not be overloaded.	control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.
13	Drills should either be operated with dust extractors or should be equipped with water injection system	Wet drilling is being 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 up to 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 & soaks pits. Sludge 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)  The land compensation and other related benefit are being provided as per norms set out in land purchase agreement with the 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 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.**

SI No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Noted and Being adhered to.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	Bauxite productions are in line with calendar plan as attached 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.	<p>Suitable conservation measures implemented for protection of flora &amp; fauna is being implemented as under:</p> <ol style="list-style-type: none"> <li>1) Permanent pillars are established Within the mine lease area.</li> <li>2) Maintenance of the forest road</li> <li>3) Ensured necessary air and noise Pollution control measures.</li> <li>4) Daily water sprinkling is being carried out on the forest road</li> <li>5) Transportation is done only in day time.</li> </ol> <p>Further afresh preparation of wildlife conservation plan is in progress in consultation with the local forest and wildlife departments.</p>

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. 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	Complied. (Documents already submitted).



	<p>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><a href="http://envfor.nic.in">http:// envfor.nic.in</a></b> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.</p>	
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# Eco Ventures Pvt. Ltd.

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## **Mahabal Enviro Engineers Pvt. Ltd.**

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

### **KUJAM – I BAUXITE MINE ENVIRONMENTAL MONITORING REPORT**

**APRIL 2019**

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

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





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

April 2019

## CONTENT

	LOCATION – KUJAM – I
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
1	Kujam Quarry 430
2	Talabkhanta 4A 13
3	4 A11 Football Ground
4	Camp





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

April 2019

<b>Report No:</b> MEEPL/MAY0374/2019-20	<b>Date:</b> 31 <sup>st</sup> May, 2019
<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>Kujam Quarry 430</b>	
Sample collected on: <b>20.04.2019</b>	

LOCATION / IDENTIFICATION: Kujam Quarry 430				
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	78.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	31.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.0
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	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0375/2019-20

Date: 31<sup>st</sup> May, 2019

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: *Talabkhanta 4A 13*

Sample collected on: *20.04.2019*

### LOCATION / IDENTIFICATION: Talabkhanta 4A 13

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	86.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	41.6
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

April 2019

<b>Report No:</b> MEEPL/MAY0376/2019-20	<b>Date:</b> 31 <sup>st</sup> May, 2019
<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>4 A 11 Football Ground</b>	
Sample collected on: <b>23.04.2019</b>	

LOCATION / IDENTIFICATION: 4 A 11 Football Ground				
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	82.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	40.3
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	2.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.6
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	2.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

April 2019

<b>Report No:</b> MEEPL/MAY0377/2019-20	<b>Date:</b> 31 <sup>st</sup> May, 2019
<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>Camp</b>	
Sample collected on: <b>20.04.2019</b>	

LOCATION / IDENTIFICATION: Camp				
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	90.4
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	43.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.6
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	1.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

April 2019

<b>Report No:</b> MEEPL/MAY0378/2019-20	<b>Date:</b> 31 <sup>st</sup> May, 2019
<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>Near Dipa Kujam Village</b>	
Sample collected on: <b>20.04.2019</b>	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	65.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	30.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.8
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	2.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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Hindalco Industries : Gurdari

Environmental Monitoring Report

April 2019

<b>Report No:</b> MEEPL/MAY0379/2019-20	<b>Date:</b> 31 <sup>st</sup> May, 2019
<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>Near Chathasari Village</b>	
Sample collected on: <b>20.04.2019</b>	

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	57.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
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	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

April 2019

<b>Report No:</b> MEEPL/MAY0400/2019-20	<b>Date:</b> 31 <sup>st</sup> May, 2019
<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>Near Shakhuapani Village</i>	
<b>Sample collected on:</b> 26.04.2019	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	51.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	24.8
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.4
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	1.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Gurdari

Environmental Monitoring Report

April 2019

<b>Report No:</b> MEEPL/MAY0392/2019-20	<b>Date:</b> 31 <sup>st</sup> May, 2019
<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>Near Pakri Gada Village</i>	
<b>Sample collected on:</b> 24.04.2019	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	53
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	1.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Eco Ventures Pvt. Ltd.

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

E: [ecoventures.mumbai@gmail.com](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

### **KUJAM – I BAUXITE MINE ENVIRONMENTAL MONITORING REPORT**

**MAY 2019**

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

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





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

MAY 2019

## CONTENT

	LOCATION – KUJAM – I
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
1	Kujam Quarry 430
2	Talabkhanta 4A 13
3	4 A11 Football Ground
4	Camp





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

MAY 2019

<b>Report no: MEEPL/JUNE0370/2019-20</b>	<b>Date: 28<sup>th</sup> June, 2019</b>
<b>Sample described by customer: AMBIENT AIR QUALITY MONITORING</b>	
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>Kujam Quarry 430</b>	
Sample collected on: <b>18.05.2019</b>	

LOCATION / IDENTIFICATION: Kujam Quarry 430				
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	84.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	39.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.26
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.0
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	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0371/2019-20

Date: 28<sup>th</sup> June, 2019

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: *Talabkhanta 4A 13*

Sample collected on: *18.05.2019*

## LOCATION / IDENTIFICATION: Talabkhanta 4A 13

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	80.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	37.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

MAY 2019

<b>Report no: MEEPL/JUNE0372/2019-20</b>	<b>Date: 28<sup>th</sup> June, 2019</b>
<b>Sample described by customer: 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: Location: <b>4 A 11 Football Ground</b>	
Sample collected on: <b>18.05.2019</b>	

LOCATION / IDENTIFICATION: 4 A 11 Football Ground				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	69.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.8
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	2.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

MAY 2019

<b>Report no: MEEPL/JUNE0373/2019-20</b>	<b>Date: 28<sup>th</sup> June, 2019</b>
<b>Sample described by customer: 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: Location: <b>Camp</b>	
Sample collected on: <b>18.05.2019</b>	

LOCATION / IDENTIFICATION: Camp				
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>83.9</b>
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	<b>60</b>	<b>41.4</b>
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>4.2</b>
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>5.8</b>
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	<b>400</b>	<b>3.1</b>
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	<b>180</b>	<b>8.4</b>
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	<b>02</b>	<b>0.27</b>
08.	Lead (Pb)	µg/m <sup>3</sup>	<b>1.0</b>	<b>0.01</b>
09.	Nickel (Ni)	µg/m <sup>3</sup>	<b>20</b>	<b>1.5</b>
10.	Arsenic (As)	µg/m <sup>3</sup>	<b>06</b>	<b>1.7</b>
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	<b>05</b>	<b>1.8</b>
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	<b>01</b>	<b>0.4</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

MAY 2019

<b>Report no:</b> MEEPL/JUNE0382/2019-20	<b>Date:</b> 28 <sup>th</sup> June, 2019
<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>Near Dipa Kujam Village</b>	
Sample collected on: <b>18.05.2019</b>	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	61.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	27.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.8
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	2.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MAY 2019

<b>Report no:</b> MEEPL/JUNE0383/2019-20	<b>Date:</b> 28 <sup>th</sup> June, 2019
<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>Near Chathasari Village</b>	
Sample collected on: <b>18.05.2019</b>	

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	64.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
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	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MAY 2019

<b>Report no:</b> MEEPL/JUNE0384/2019-20	<b>Date:</b> 28 <sup>th</sup> June, 2019
<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>Near Shakhuapani Village</i>	
<b>Sample collected on:</b> 22.05.2019	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	58.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	23.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.4
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	1.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MAY 2019

<b>Report no:</b> MEEPL/JUNE0385/2019-20	<b>Date:</b> 28 <sup>th</sup> June, 2019
<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>Near Pakri Gada Village</i>	
<b>Sample collected on:</b> 21.05.2019	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	55.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.3
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	3.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	1.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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# 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

### **KUJAM – I BAUXITE MINE ENVIRONMENTAL MONITORING REPORT**

**JUNE 2019**

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

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





# Mahabal Enviro Engineers Pvt. Ltd.

**Branch Office:**

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JUNE 2019

## CONTENT

	LOCATION – KUJAM – I
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
1	Kujam Quarry 430
2	Talabkhanta 4A 13
3	4 A11 Football Ground
4	Camp





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JUNE 2019

<b>Report no: MEEPL/JULY0279/2019-20</b>	<b>Date: 15<sup>th</sup> July, 2019</b>
<b>Sample described by customer: AMBIENT AIR QUALITY MONITORING</b>	
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>Kujam Quarry 430</b>	
Sample collected on: <b>19.06.2019</b>	

LOCATION / IDENTIFICATION: Kujam Quarry 430				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	88.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	41.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.9
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	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0280/2019-20

Date: 15<sup>th</sup> July, 2019

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: *Talabkhanta 4A 13*

Sample collected on: *19.06.2019*

### LOCATION / IDENTIFICATION: Talabkhanta 4A 13

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	82.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	39.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
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	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JUNE 2019

<b>Report no:</b> MEEPL/JULY0281/2019-20	<b>Date:</b> 15 <sup>th</sup> July, 2019
<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>4 A 11 Football Ground</b>	
Sample collected on: <b>19.06.2019</b>	

LOCATION / IDENTIFICATION: 4 A 11 Football Ground				
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	74.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	36.3
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	5.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.4
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.3
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	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JUNE 2019

<b>Report no:</b> MEEPL/JULY0282/2019-20	<b>Date:</b> 15 <sup>th</sup> July, 2019
<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>Camp</b>	
Sample collected on: <b>19.06.2019</b>	

LOCATION / IDENTIFICATION: Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	80.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.7
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	6.4
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	1.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JUNE 2019

<b>Report no:</b> MEEPL/JULY0291/2019-20	<b>Date:</b> 15 <sup>th</sup> July, 2019
<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>Near Dipa Kujam Village</b>	
Sample collected on: <b>19.06.2019</b>	

### LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	57.4
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	23.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.34

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JUNE 2019

<b>Report no:</b> MEEPL/JULY0292/2019-20	<b>Date:</b> 15 <sup>th</sup> July, 2019
<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>Near Chathasari Village</b>	
Sample collected on: <b>19.06.2019</b>	

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	60.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	26.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Gurdari

Environmental Monitoring Report

JUNE 2019

<b>Report no:</b> MEEPL/JULY0293/2019-20	<b>Date:</b> 15 <sup>th</sup> July, 2019
<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: Location:</b> <i>Near Shakhuapani Village</i>	
<b>Sample collected on:</b> 22.06.2019	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	53.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	21.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.5
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	2.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.21
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
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	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JUNE 2019

<b>Report no:</b> MEEPL/JULY0294/2019-20	<b>Date:</b> 15 <sup>th</sup> July, 2019
<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>Near Pakri Gada Village</i>	
<b>Sample collected on:</b> 21.06.2019	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	50.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	20.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.22
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Eco Ventures Pvt. Ltd.

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

E: [ecoventures.mumbai@gmail.com](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

### **KUJAM – I BAUXITE MINE ENVIRONMENTAL MONITORING REPORT**

**JULY 2019**

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

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







# Mahabal Enviro Engineers Pvt. Ltd.

## **Branch Office:**

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JULY 2019

## CONTENT

	LOCATION – KUJAM – I
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
1	Kujam Quarry 430
2	Talabkhanta 4A 13
3	4 A11 Football Ground
4	Camp
	<b>RUNOFF WATER ANALYSIS</b>
1	Kujam – I Bauxite Mines
	<b>AMBIENT NOISE MONITORING</b>
1	Kujam – I Bauxite Mines





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JULY 2019

<b>Report no:</b> MEEPL/AUG0241/2019-20	<b>Date:</b> 12 <sup>th</sup> August, 2019
<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>Kujam Quarry 430</b>	
Sample collected on: <b>17.07.2019</b>	

LOCATION / IDENTIFICATION: Kujam Quarry 430				
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>64.2</b>
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	<b>60</b>	<b>32.7</b>
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>6.1</b>
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	<b>80</b>	<b>7.9</b>
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	<b>400</b>	<b>4.5</b>
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	<b>180</b>	<b>6.0</b>
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	<b>02</b>	<b>0.32</b>
08.	Lead (Pb)	µg/m <sup>3</sup>	<b>1.0</b>	<b>0.02</b>
09.	Nickel (Ni)	µg/m <sup>3</sup>	<b>20</b>	<b>1.7</b>
10.	Arsenic (As)	µg/m <sup>3</sup>	<b>06</b>	<b>1.3</b>
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	<b>05</b>	<b>1.9</b>
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	<b>01</b>	<b>0.27</b>

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JULY 2019

<b>Report no: MEEPL/AUG0242/2019-20</b>	<b>Date: 12<sup>th</sup> August, 2019</b>
<b>Sample described by customer: AMBIENT AIR QUALITY MONITORING</b>	
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>Talabkhanta 4A 13</b>	
Sample collected on: <b>17.07.2019</b>	

LOCATION / IDENTIFICATION: Talabkhanta 4A 13				
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	58.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	26.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.0
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	3.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
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	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JULY 2019

<b>Report no: MEEPL/AUG0243/2019-20</b>	<b>Date: 12<sup>th</sup> August, 2019</b>
<b>Sample described by customer: 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: Location: <b>4 A 11 Football Ground</b>	
Sample collected on: <b>17.07.2019</b>	

LOCATION / IDENTIFICATION: 4 A 11 Football Ground				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	53.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	21.8
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JULY 2019

<b>Report no:</b> MEEPL/AUG0244/2019-20	<b>Date:</b> 12 <sup>th</sup> August, 2019
<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>Camp</b>	
Sample collected on: <b>17.07.2019</b>	

LOCATION / IDENTIFICATION: Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	62.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	30.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.37

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JULY 2019

<b>Report no: MEEPL/AUG0245/2019-20</b>			<b>Date: 12<sup>th</sup> August, 2019</b>		
Sample described by customer: <b>Runoff Water</b>					
Client Name: <b>Hindalco Industries Limited</b>					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: <b>Runoff Water – Surface Water</b>					
Marks on Sample: Location: <b>Kujam – I Bauxite Mines</b>					
<b>Quantity:</b> 4 liters.					
<b>Sample collected on:</b> 17.07.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B,4-92	<b>7.9</b>	mg/l	5.5-9.0
2.	<b>Total Suspended Solids</b>	APHA 22 <sup>nd</sup> EDN: 2012-2540	<b>76</b>	mg/l	100
3.	<b>BOD @ 27°C</b>	IS 3025 (Part 44): 1993, RA2003, Amd.1	<b>6.5</b>	mg/l	30
4.	<b>COD</b>	IS 3025 (Part 58): 1993, RA2006, Amd.1	<b>34</b>	mg/l	250
5.	<b>Oil &amp; Grease</b>	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<b>&lt;5.0</b>	mg/l	10
6.	<b>Total Dissolved Solids</b>	APHA 22 <sup>ND</sup> EDN 2012-2540	<b>1647</b>	mg/l	2100
7.	<b>Aluminium (as Al)</b>	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>1.0</b>	mg/l	3
8.	<b>Calcium (as Ca)</b>	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>8.0</b>	mg/l	75
9.	<b>Iron (as Fe)</b>	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>0.92</b>	mg/l	3
10.	<b>Temperature</b>		<b>31.4</b>	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

**Vijay Pandey**  
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Hindalco Industries : Kujam – I

Environmental Monitoring Report

JULY 2019

<b>Report no:</b> MEEPL/AUG0246/2019-20	<b>Date:</b> 12 <sup>th</sup> August, 2019
<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	
Data Collection Date: 17.07.2019	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Lohardaga Railway Siding	dB (A) $L_{eq}$	75	64.7	70	56.1

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Gurdari

Environmental Monitoring Report

JULY 2019

<b>Report no:</b> MEEPL/AUG0259/2019-20	<b>Date:</b> 12 <sup>th</sup> August, 2019
<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>Near Dipa Kujam Village</b>	
Sample collected on: <b>19.07.2019</b>	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	41.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	19.8
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	4.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
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	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries : Gurdari

Environmental Monitoring Report

JULY 2019

<b>Report no:</b> MEEPL/AUG0260/2019-20	<b>Date:</b> 12 <sup>th</sup> August, 2019
<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>Near Chathasari Village</b>	
Sample collected on: <b>19.07.2019</b>	

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	47.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	22.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.26
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Gurdari

Environmental Monitoring Report

JULY 2019

<b>Report no:</b> MEEPL/AUG0261/2019-20	<b>Date:</b> 12 <sup>th</sup> August, 2019
<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>Near Shakhuapani Village</i>	
<b>Sample collected on:</b> 19.07.2019	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	44.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	18.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.20
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.93
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

JULY 2019

<b>Report no:</b> MEEPL/AUG0262/2019-20	<b>Date:</b> 12 <sup>th</sup> August, 2019
<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>Near Pakri Gada Village</i>	
<b>Sample collected on:</b> 19.07.2019	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	39.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	16.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	4.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.18
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.98
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
 SENIOR EXECUTIVE





# Eco Ventures Pvt. Ltd.

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## **Mahabal Enviro Engineers Pvt. Ltd.**

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

### **KUJAM – I BAUXITE MINE ENVIRONMENTAL MONITORING REPORT**

**AUGUST 2019**

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

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





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

AUGUST 2019

## CONTENT

	LOCATION – KUJAM – I
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
1	Kujam Quarry 430
2	Talabkhanta 4A 13
3	4 A11 Football Ground
4	Camp





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

AUGUST 2019

<b>Report no:</b> MEEPL/SEP0230/2019-20	<b>Date:</b> 14 <sup>th</sup> September, 2019
<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>Kujam Quarry 430</b>	
Sample collected on: <b>19.08.2019</b>	

LOCATION / IDENTIFICATION: Kujam Quarry 430				
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	28.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	13.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0231/2019-20

Date: 14<sup>th</sup> September, 2019

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: *Talabkhanta 4A 13*

Sample collected on: *19.08.2019*

### LOCATION / IDENTIFICATION: Talabkhanta 4A 13

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	23.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	11.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	4.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
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	1.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

AUGUST 2019

<b>Report no:</b> MEEPL/SEP0232/2019-20	<b>Date:</b> 14 <sup>th</sup> September, 2019
<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>4 A 11 Football Ground</b>	
Sample collected on: <b>19.08.2019</b>	

LOCATION / IDENTIFICATION: 4 A 11 Football Ground				
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	17.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	7.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	1.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.16
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

AUGUST 2019

<b>Report no:</b> MEEPL/SEP0233/2019-20	<b>Date:</b> 14 <sup>th</sup> September, 2019
<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>Camp</b>	
Sample collected on: <b>19.08.2019</b>	

LOCATION / IDENTIFICATION: Camp				
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	14.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	5.8
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	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	4.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.22
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
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	1.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

AUGUST 2019

<b>Report no:</b> MEEPL/SEP0242/2019-20	<b>Date:</b> 14 <sup>th</sup> September, 2019
<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>Near Dipa Kujam Village</b>	
Sample collected on: <b>20.08.2019</b>	

### LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	17.4
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	11.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	4.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.20
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.69
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.91
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Gurdari

Environmental Monitoring Report

AUGUST 2019

<b>Report no:</b> MEEPL/SEP0243/2019-20	<b>Date:</b> 14 <sup>th</sup> September, 2019
<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>Near Chathasari Village</b>	
Sample collected on: <b>20.08.2019</b>	

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	18.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	10.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	0.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	4.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.16
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	0.9
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Gurdari

Environmental Monitoring Report

AUGUST 2019

<b>Report no:</b> MEEPL/SEP0244/2019-20	<b>Date:</b> 14 <sup>th</sup> September, 2019
<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>Near Shakhuapani Village</i>	
<b>Sample collected on:</b> 22.08.2019	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	16.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	7.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	0.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	0.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	3.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.12
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.75
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

AUGUST 2019

<b>Report no:</b> MEEPL/SEP0245/2019-20	<b>Date:</b> 14 <sup>th</sup> September, 2019
<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>Near Pakri Gada Village</i>	
<b>Sample collected on:</b> 21.08.2019	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	16.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	9.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.17
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.85
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.21

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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## **Mahabal Enviro Engineers Pvt. Ltd.**

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,  
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### **KUJAM – I BAUXITE MINE ENVIRONMENTAL MONITORING REPORT**

**SEPTEMBER 2019**

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

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





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

## CONTENT

	LOCATION – KUJAM – I
	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
1	Kujam Quarry 430
2	Talabkhanta 4A 13
3	4 A11 Football Ground
4	Camp





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0185/2019-20

Date: 18<sup>th</sup> October, 2019

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: **Kujam Quarry 430**

Sample collected on: **18.09.2019**

### LOCATION / IDENTIFICATION: Kujam Quarry 430

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	36.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	19.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.11
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.6
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0186/2019-20

Date: 18<sup>th</sup> October, 2019

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: **Talabkhanta 4A 13**

Sample collected on: **18.09.2019**

### LOCATION / IDENTIFICATION: Talabkhanta 4A 13

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	28.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	15.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.11
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.15

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0187/2019-20

Date: 18<sup>th</sup> October, 2019

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: **4 A 11 Football Ground**

Sample collected on: **18.09.2019**

### LOCATION / IDENTIFICATION: 4 A 11 Football Ground

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	18.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	10.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.06
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
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	0.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.13

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0188/2019-20

Date: 18<sup>th</sup> October, 2019

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: **Camp**

Sample collected on: **18.09.2019**

### LOCATION / IDENTIFICATION: Camp

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	15.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	8.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.07
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.3
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	0.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

<b>Reports no:</b> MEEPL/OCT0197/2019-20	<b>Date:</b> 18 <sup>th</sup> October, 2019
<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>Near Dipa Kujam Village</b>	
Sample collected on: <b>20.09.2019</b>	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	16.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	8.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.3
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.12
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0198/2019-20

Date: 18<sup>th</sup> October, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: *Near Chathasari Village*

Sample collected on: 20.09.2019

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	14.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	7.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.05
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.14

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

<b>Reports no:</b> MEEPL/OCT0199/2019-20	<b>Date:</b> 18 <sup>th</sup> October, 2019
<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>Near Shakhuapani Village</i>	
<b>Sample collected on:</b> 20.09.2019	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	13.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	8.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.08
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.2
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – I

Environmental Monitoring Report

SEPTEMBER 2019

<b>Reports no:</b> MEEPL/OCT0200/2019-20	<b>Date:</b> 18 <sup>th</sup> October, 2019
<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>Near Pakri Gada Village</i>	
<b>Sample collected on:</b> 20.09.2019	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	18.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	9.8
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.07
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
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	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE



## Annexure-2

### BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2019-20

The composite cost during the year 2019-20 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), Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud (152.57 ha), Orsa pat (196.36 Ha), Bhusar (65.31 Ha) and Bimarla Bauxite Mines (134.52 Ha).

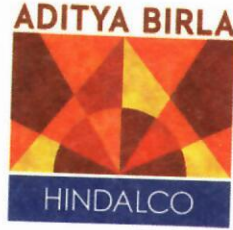
S. No	Description	Budget (in Rupees) FY 2019-20	Actual (in Rupees) FY 2019-20 (from April'19 to Sep'19)
1	Pollution Control & Environment monitoring	3,351,809.00	1,650,803.00
2	Reclamation/ Back filing & Rehabilitation**	25,300,000.00	8,571,756.00
3	Green belt, Plantation & Water spraying arrangement	4,725,854.00	2,360,877.00
4	Rural Development	22,035,865.00	9,848,659.98

\*\*Part of OB removed cost.



(Basudev Gangopadhyay)  
Convenor (Quality & Environment)





Date: 10.01.19

## 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. S P Jha Manager (Coordinator)
2. Mr. Kailash Prasad- Geologist (Member)
3. Mr. Suraj Ram (Member)

Basudev Gangopadhyay  
Convenor (Quality & Environment)

## Annexure 4


### Production, Mined Out, Back Filled and Over Burden removal from April'19 to September'19

S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	Mine is not in operation since November 2013.			
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	4895	0.07	0.00	77442.60
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	7972	0.06	0.00	11629.94
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	NIL	NIL	0.67	21974.96
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	NIL	NIL	1.20	53614.90
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	NIL	NIL	1.00	107763.230
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	153475	6.95	4.67	111211.184
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	147045	5.00	7.00	325000
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	NIL	NIL	NIL	NIL
10	Jalim&Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	28545	0.39	0.33	16000

## Annexure 4

11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL	
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL	
13	Pakhhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL	
14	Pakhhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL	
15	Pakhhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	25000	0.35	0.58	72808.76	
<b>Minerals &amp; Minerals Limited</b>									
16	Pakhhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	49800	0.4	0.20	48359.23	
17	Pakhhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	118700	1.00	2.04	162256	
18	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	87320	4.33	3.10	241367.05	

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

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