

# MINERALS & MINERALS LIMITED

Regd. Office P.O. & Dist. – Lohardaga (Jharkhand) PIN – 835302

Phone: 06526-224016, 224112, FAX: 06526-224118

Ref No: M&M/LHD/JP (M)/MoEF/1249

Date: 23.11.16

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 Bimarla (134.526 ha) Bauxite Mining project of M/sMinerals & Minerals Limited located in Gumla, Jharkhand for the period April'16-Sep'16.**

Ref: **Environmental Clearance letter no J-11015/87/2009-IA.II (M) dated 24<sup>th</sup> Sep, 2013**

Sir.

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bimarla (134.526 ha) Bauxite Mining project of M/s Minerals & Minerals Limited, located in Gumla, Jharkhand for the period April'16-Sep'16.**

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR Minerals & Minerals Limited

  
(Bijesh Kumar Jha)  
Agent of Mines

Enclosure: - As Above

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

**Bimarla Bauxite Mines (Area 134.526 Ha)**

**Environmental Clearance –Vide letter no-J-11015/87/2009-IA.II (M) dated 24<sup>th</sup> Sep, 2013**

**Compliance Status, Period: Period:April'16-Sep'16**

Sl no	Specific Condition	Compliance
1	The project proponent shall obtain Consent to Establish and Consent to Operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.	Consent to Establish and consent to operate obtained.Implementation of Stipulated conditions are being complied.
2	Implementations of conditions laid down in the letter of the State Department of Forests vide dated 11.05.2012 with regard to permission for transportation of ore through the forest land.	Implementations of the conditions as laid down in the letter are in process.
3	Necessary wildlife clearance as may be applicable to this project should be obtained. Measures for conservation of flora and fauna observed in the study area shall be undertaken. Wildlife Conservation Plan shall be implemented in consultation with the State Forests and Wildlife Department.	Wildlife Conservation Plan has been duly prepared. Safeguard Measures already implemented are as follows: 1)Minimum level of Noise during Mining. 2)Fuel woods are being provided to labourers. 3)permanent pillars are established within in the mine lease area at 7.5m from the forest boundary 4)Daily water sprinkling on haul road. 5)Transportation is carried out during day time only. 6)Social activities is being undertaken in nearby areas etc

4	Adequate measures for control of air pollution in the area shall be taken and it shall be ensured that the pollution levels do not exceed the prescribed limits.	Measures for control of air pollution in the area are being taken. Air monitoring is being carried out on quarterly basis.
5	No working shall be undertaken in the forest area for which forestry clearance has not been obtained.	Lease area is devoid of any forest land.
6	Necessary prior clearance, as applicable shall be obtained from CGWA for working below groundwater table.	Mining is confined to above ground water table level only.
7	The Company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter-alia provide for (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders.	(i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company have been submitted to MoEF.
8	The mining operations shall be restricted to above the groundwater table and it should not intersect the groundwater table, In case of working below the groundwater table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be	Mining is confined to above ground water table level only. Mining will not intersect the ground water table.

	carried out.	
9	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected	No natural watercourse and/or water resources will be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area will be protected.
10	The top soil, if any shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long; The topsoil shall be used for land reclamation and plantation.	Top soil is being stacked separately for reclamation and rehabilitation of mines out areas with progress of mining.
11	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 and its Regional Office, Bhubaneswar on six monthly basis.	Will be complied with progress of mining.
12	Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, soil and mineral dumps to arrest flow of silt and sediment directly into the agricultural fields and the water bodies. 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 drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and	Will be complied with the progress of mining activities.

	<p>flow sediments directly into the agricultural fields and the water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	
13	<p>Dimension of the retaining wall at the toe of sub-grade dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.</p>	<p>Will be complied with progress of mining activities.</p>
14	<p>The plantation is proposed over an area of 24 ha with 2500 samplings per ha.</p>	<p>Around 300 saplings have been planted in safety zone. Will be complied progressively.</p>
15	<p>Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Regular water sprinkling is being carried out on haul road and critical areas.</p>
16	<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</p>	<p>Suitable measures will be undertaken to augment ground water.</p>

	Board.	
17	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	Regular monitoring for ground water quality is being carried out. Report attached.
18	Monitoring of the springs shall be carried out for the quality and quantity of water regularly so as to ensure that there is no adverse impact- on the same due to the project. Records in this regards shall be maintained.	Monitoring of springs will be carried out as applicable.
19	It shall be ensured that there is no change in the hydrology of the area due to the project.	Agreed
20	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director,	Rain water harvesting measures will be implemented.

	Central Ground Water Board.	
21	Appropriate mitigative measures shall be taken to prevent pollution of the all the water bodies, in consultation with the State Pollution Control Board	All suitable measures are being taken to prevent water pollution.
22	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.	Regular maintenance of vehicles are undertaken to minimize vehicular emission. All measures are being taken to control emission. The vehicles are covered with tarpaulin.
23	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Blasting operation is being carried out only during the daytime only (during 12.00 to 1.00 PM). Controlled blasting technique will be implemented.
24	Drills shall either be operated with dust extractors or equipped with water injection system.	Wet drilling is in practice.
25	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Dust suppression techniques are in place at Mineral handling, loading and unloading areas.
26	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.	Suitable measures will be taken. There is no effluent generated from these mines.

27	The project authorities should undertake sample survey to generate data on pre project community health status within a radius of 1 km from proposed mine.	Will be complied.
28	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre-placement medical examination conducted. Periodical medical examination are being carried out in due time.
29	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Safe drinking water and medical facilities already provided. Other applicable infrastructure Will be constructed phase wise.
30	The critical parameters such as RSPM (Particulate matter with size less than 10µm i.e. PM <sub>10</sub> ) and NO <sub>x</sub> in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. 3-20012/1/2006- IA.11 (M) dated	Ambient Air Quality monitoring is being conducted quarterly. Monitoring data is uploaded in website and displayed at mines (report enclosed) Other applicable parameter will be complied as per statute.



	27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nican shall also be referred in this regard for its compliance.	
31	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.	Will be complied in due time. Progressive Mine closure plan has been approved along with Scheme of Mining.

Sl No	General Conditions	Compliance
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Agreed and will be complied.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Agreed and will be complied.
3	Conservation measures for protection of flora and fauna in the core and bufferzone should be drawn up in consultation with the local forest and wildlife department	Conservation plan for protection of flora and fauna has been prepared for implementation.
4	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically	Monitoring is being carried out and reported to concern authorities. Report attached.

	<p>sensitive targets and frequency</p> <p>of monitoring should be undertaken in consultation with the State Pollution Control Board</p>	
5	<p>Data on ambient air quality [(RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOx] should be regularly submitted to the Ministry including its Regional office located at: Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.</p>	<p>Monitoring is being carried out and reported to concern authorities. Report attached.</p>
6	<p>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.</p>	<p>Suitable water spraying arrangement is being done to control fugitive dust emissions from loading, unloading and transfer points as applicable.</p>
7	<p>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.</p>	<p>Measures are being taken for control of noise level.PPE 's provided to workers.</p>
8	<p>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 31' December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.</p>	<p>There is no industrial waste water;we are in the process of installation of required infrastructure as per suitability.</p>

9	<p>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.</p>	<p>Personal protective equipments have been provided to workers.</p>
10	<p>A separate environmental management cell with suitable qualified personnel directly to the Head of the Organization.</p>	<p>Separate environment management cell with suitable qualified persons is already formulated.</p>
11	<p>The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.</p>	<p>The fund earmarked for environmental protection measures is being kept in separate account and will not be diverted for other purpose. Annual expenditure is being reported to the Ministry.</p>
12	<p>The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</p>	<p>Date of start of land development is 21.05.2015. The provision related to financial closure is not applicable as it is operational Mines.</p>
13	<p>The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project</p>	<p>Agreed.</p>

	<p>authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.</p>	
14	<p>The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board</p>	<p>Six monthly compliance is being submitted timely to the Ministry of Environment and Forests, its Regional Office Ranchi, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. And also uploaded in Hindalco's website.</p>
15	<p>The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.</p>	<p>Displayed.</p>
16	<p>The environmental statement for each financial year ending 31 March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as</p>	<p>Is being complied.</p>

	<p>prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.</p>	
17	<p>The project authorities should advertise at least in two local newspapers of the which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar</p>	<p>Complied. Relevant paper cutting duly submitted.</p>



# 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

### KORLE-BIRMARLA PLATEAU- ENVIRONMENTAL MONITORING REPORT

JULY TO SEPTEMBER 2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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Hindalco Industries: Environmental Monitoring Report

JULY - SEPTEMBER 2016

## CONTENT

	LOCATION
	<b>AMBIENT AIR QUALITY</b>
1	Nav Prathmik Vidyalaya Barang Path
2	Birmala Quarry No 2
3	Near Weigh Bridge
4	Korle (Kahukoha)
	<b>NOISE LEVEL</b>
1	Near Weigh Bridge
	<b>SPOT NOISE</b>
1	Near Weigh Bridge
	<b>DRINKING WATER</b>
1	Near Canteen



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**Hindalco Industries: Environmental Monitoring Report**

**JULY - SEPTEMBER 2016**

<b>Report no:</b> : MEEPL/ OCT0161/2016-17	<b>Date:</b> 31 <sup>st</sup> October, 2016
<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: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 26.09.2016	
Received: 27.09.2016	
Registered: 27.09.2016	
Test Start/End Date: 27.09.2016/29.09.2016	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
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	46.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	16.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	25.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	10.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	14.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.40
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	6.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE



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**Hindalco Industries: Environmental Monitoring Report**

**JULY – SEPTEMBER 2016**

<b>Report no: : MEEPL/ OCT0162/2016-17</b>	<b>Date: 31<sup>st</sup> October, 2016</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: Birmala Quarry No 2	
Sample collected on: 26.09.2016	
Received: 27.09.2016	
Registered: 27.09.2016	
Test Start/End Date: 27.09.2016/29.09.2016	

LOCATION / IDENTIFICATION: Birmala Quarry No 2				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	59.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	21.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	33.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	16.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	18.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.45
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	7.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.4
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	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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**Hindalco Industries: Environmental Monitoring Report**

**JULY - SEPTEMBER 2016**

<b>Report no:</b> : MEEPL/ OCT0163/2016-17	<b>Date:</b> 31 <sup>st</sup> October, 2016
<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: Near Weigh Bridge	
Sample collected on: 26.09.2016	
Received: 27.09.2016	
Registered: 27.09.2016	
Test Start/End Date: 27.09.2016/29.09.2016	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	54.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	20.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	32.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	13.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	15.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.50
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	7.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.87
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	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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SENIOR EXECUTIVE





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Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0164/2016-17	Date: 31 <sup>st</sup> October, 2016
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: Korle (KahuKoha)	
Sample collected on: 26.09.2016	
Received: 27.09.2016	
Registered: 27.09.2016	
Test Start/End Date: 27.09.2016/29.09.2016	

LOCATION / IDENTIFICATION: Korle (KahuKoha)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	66.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	17.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	28.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	15.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	18.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.50
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	7.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.93
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India  
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# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,  
Mobile No: +91 9431.102.102 / +91 9955.358.262,  
E-mail: mahabalranchi@gmail.com

**Hindalco Industries: Environmental Monitoring Report**

**JULY - SEPTEMBER 2016**

<b>Report no: : MEEPL/ OCT0165/2016-17</b>	<b>Date: 31<sup>st</sup> October, 2016</b>
Sample described by customer: Measurement of Noise	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>26.09.2016</b>	
Analyse Date: <b>27.09.2016</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Near Weigh Bridge	dB (A) Leq	75	61.6	70	43.9	26/09/2016

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**Hindalco Industries: Environmental Monitoring Report**

**JULY – SEPTEMBER 2016**

<b>Report no. : MEEPL/ OCT0166/2016-17</b>	<b>Date: 31<sup>st</sup> October, 2016</b>
Sample described by customer: Measurement of Noise	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Spot Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>26.09.2016</b>	
Analyse Date: <b>27.09.2016</b>	

Location/Identification	Unit	Limit (day)	Result	Dates
Near Dumper	dB (A) Leq	75	68.0	26/09/2016

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**Hindalco Industries: Environmental Monitoring Report**

**JULY – SEPTEMBER 2016**

<b>Report no. :</b> MEEPL/OCT0167/2016-17	<b>Date:</b> 31 <sup>st</sup> October, 2016
Sample described by customer : <b>DRINKING WATER-POTABILITY</b>	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: <b>DRINKING WATER-POTABILITY</b>	
Marks on Sample: Location: <b>Near Canteen</b>	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 26.09.2016	
Received: 26.09.2016	
Registered: 26.09.2016	
Test Start/End Date: 27.09.2016/29.09.2016	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.2	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.9	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.05	0.2 min	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	81	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO <sub>3</sub> )	mg/l	64	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	50	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	16.2	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	9.4	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Continuation Sheet  
MEEPL/OCT0167/2016-17

Report no: : MEEPL/ OCT0167/2016-17				Date: 31 <sup>st</sup> October, 2016	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.10	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.03	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.02	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	20.8	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.2	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NH <sub>3</sub> -F, 4-115
20	Iron (as Fe)	mg/l	0.04	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.04	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.01	0.02 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 <sup>nd</sup> ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 <sup>nd</sup> ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-S <sub>2</sub> -C 4- 175 & F 4-178



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Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Continuation Sheet  
MEEPL/OCT0167/2016-17

Report no: : MEEPL/ OCT0167/2016-17				Date: 31 <sup>st</sup> October, 2016	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
<b>Microbiological Analysis</b>					
1	Total Colliforms	MPN/100mL	N.D	<1.1	APHA 22 <sup>nd</sup> Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	N.D	Absent	APHA 22 <sup>nd</sup> Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-76
<b>Pesticides Residues</b>					
3	p.p DDT	µg/L	N.D	1	US EPA 508-1995
4	o.p DDT	µg/L	N.D	1	US EPA 508-1995
5	p.p DDE	µg/L	N.D	1	US EPA 508-1995
6	o.p DDE	µg/L	N.D	1	US EPA 508-1995
7	p.p DDD	µg/L	N.D	1	US EPA 508-1995
8	o.p DDD	µg/L	N.D	1	US EPA 508-1995
9	γ-HCH (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α-HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	δ-HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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.

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## Mahabal Enviro Engineers Pvt. Ltd.

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

### KORLE-BIRMARLA PLATEAU- ENVIRONMENTAL MONITORING REPORT

APRIL TO JUNE 2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries: Environmental Monitoring report

April-June 2016

## CONTENT

	LOCATION
	<b>AMBIENT AIR QUALITY</b>
1	Nav Prathmik Vidyalaya Barang Path
2	Birmala Quarry No 2
3	Near Weigh Bridge
4	Korle (Kahukoha)
	<b>NOISE LEVEL</b>
1	Near Weigh Bridge
	<b>SPOT NOISE</b>
1	Near Weigh Bridge
	<b>DRINKING WATER</b>
1	Near Canteen



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Hindalco Industries: Environmental Monitoring report

April-June 2016

Report no: : MEEPL/ JULY089/2016-17	Date: 18 <sup>th</sup> July, 2016
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: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 18.06.2016	
Received: 20.06.2016	
Registered: 20.06.2016	
Test Start/End Date: 20.06.2016/24.06.2016	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 $\mu\text{m}$ ) PM <sub>10</sub>	$\mu\text{g}/\text{m}^3$	100	54.2
02.	Particulate Matter (size less than 2.5 $\mu\text{m}$ ) PM <sub>2.5</sub>	$\mu\text{g}/\text{m}^3$	60	32.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	80	24.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	$\mu\text{g}/\text{m}^3$	80	31.5
05.	Ammonia (NH <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	400	13.5
06.	Ozone (O <sub>3</sub> )	$\mu\text{g}/\text{m}^3$	180	14.5
07.	Carbon Monoxide (CO)	$\text{mg}/\text{m}^3$	02	0.61
08.	Lead (Pb)	$\mu\text{g}/\text{m}^3$	1.0	0.02
09.	Nickel (Ni)	$\text{ng}/\text{m}^3$	20	6.4
10.	Arsenic (As)	$\text{ng}/\text{m}^3$	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	$\mu\text{g}/\text{m}^3$	05	2.9
12.	Benzo (a) Pyrene	$\mu\text{g}/\text{m}^3$	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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**Hindalco Industries: Environmental Monitoring report**

**April-June 2016**

<b>Report no: : MEEPL/ JULY090/2016-17</b>	<b>Date: 18<sup>th</sup> July, 2016</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: Birmala Quarry No 2	
Sample collected on: 18.06.2016	
Received: 20.06.2016	
Registered: 20.06.2016	
Test Start/End Date: 20.06.2016/24.06.2016	

LOCATION / IDENTIFICATION: Birmala Quarry No 2				
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	53.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	24.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	33.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	15.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	11.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.42
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	6.4
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.42

For Mahabal Enviro Engineers Pvt. Ltd.

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April-June 2016

Report no: : MEEPL/ JULY091/2016-17	Date: 18 <sup>th</sup> July, 2016
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 Weigh Bridge	
Sample collected on: 18.06.2016	
Received: 20.06.2016	
Registered: 20.06.2016	
Test Start/End Date: 20.06.2016/24.06.2016	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	51.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	33.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	24.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	31.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	18.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	14.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.51
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	6.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.42

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**Hindalco Industries: Environmental Monitoring report**

**April-June 2016**

<b>Report no: : MEEPL/ JULY092/2016-17</b>	<b>Date: 18<sup>th</sup> July, 2016</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>Korle (KahuKoha)</b>	
Sample collected on: 18.06.2016	
Received: 20.06.2016	
Registered: 20.06.2016	
Test Start/End Date: 20.06.2016/24.06.2016	

LOCATION / IDENTIFICATION: Korle (KahuKoha)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	56.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	27.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	36.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	19.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	13.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.52
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	9.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	3.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.42

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE



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# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Environmental Monitoring report

April-June 2016

<b>Report no. : MEEPL/ JULY093/2016-17</b>	<b>Date: 18<sup>th</sup> July, 2016</b>
Sample described by customer: Measurement of Noise	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>18.06.2016</b>	
Analyse Date: <b>18.06.2016</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Near Weigh Bridge	dB (A) Leq	75	59.2	70	42.5	18/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Environmental Monitoring report

April-June 2016

<b>Report no. :</b> MEEPL/ JULY094/2016-17	<b>Date:</b> 18 <sup>th</sup> July, 2016
Sample described by customer: Measurement of Noise	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Spot Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>18.06.2016</b>	
Analyse Date: <b>27.06.2016</b>	

Location/Identification	Unit	Limit (day)	Result	Dates
Near Dumper	dB (A) Leq	75	62.4	18/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

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**Hindalco Industries: Environmental Monitoring report**

**April-June 2016**

<b>Report no :</b> MEEPL/ JULY095/2016-17	<b>Date:</b> 18 <sup>th</sup> July, 2016
Sample described by customer : <b>DRINKING WATER-POTABILITY</b>	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: <b>DRINKING WATER-POTABILITY</b>	
Marks on Sample: Location: <b>Near Canteen</b>	
Sample collected on: 18.06.2016	
Quantity: 5 L X 2 No. PVC Can	
Received: 20.06.2016	
Registered: 20.06.2016	
Test Start/End Date: 20.06.2016/24.06.2016	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.3	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.7	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.05	0.2 min	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	95	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO <sub>3</sub> )	mg/l	51	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	59	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	15.0	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	10.0	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries: Environmental Monitoring report

April-June 2016

Continuation Sheet  
MEEPL/JULY095/2016-17

Report no: : MEEPL/ JULY095/2016-17				Date: 18 <sup>th</sup> July, 2016	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.36	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.03	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.04	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	27.2	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.2	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NH <sub>3</sub> -F, 4-115
20	Iron (as Fe)	mg/l	0.06	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.04	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.01	0.02 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 <sup>nd</sup> ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 <sup>nd</sup> ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-S2-C 4- 175 & F 4-178



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Continuation Sheet  
MEEPL/JULY095/2016-17

Report no: : MEEPL/ JULY095/2016-17				Date: 18 <sup>th</sup> July, 2016	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
<b>Microbiological Analysis</b>					
1	Total Colliforms	MPN/100mL	N.D.	<1.1	APHA 22 <sup>nd</sup> Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	N.D.	Absent	APHA 22 <sup>nd</sup> Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-76
<b>Pesticides Residues</b>					
3	p.p DDT	µg/L	N.D.	1	US EPA 508-1995
4	o.p DDT	µg/L	N.D.	1	US EPA 508-1995
5	p.p DDE	µg/L	N.D.	1	US EPA 508-1995
6	o.p DDE	µg/L	N.D.	1	US EPA 508-1995
7	p.p DDD	µg/L	N.D.	1	US EPA 508-1995
8	o.p DDD	µg/L	N.D.	1	US EPA 508-1995
9	γ-HCH (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α -HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D.	0.04	US EPA 508-1995
12	δ- HCH	µg/L	N.D.	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D.	125	US EPA 508-1995
14	Alachlor	µg/L	N.D.	20	US EPA 508-1995
15	Atrazine	µg/L	N.D.	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D.	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D.	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D.	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D.	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D.	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D.	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D.	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D.	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D.	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D.	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D.	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE



Date: 05.09.16

### Office Order

Environmental Cell has been re-constituted at Bimarla Bauxite Mines (Area 134.526 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.

Name	Designation
Mr. Ananda .Sahu	Manager (Mines) (Coordinator)
Mr. Ranjan Kumar	Dy.Officer (Personnel & Admin)Member
Mr. Ramesh Kumar	Asst. Officer (Geology) Member
Mr. Chandra Kant Dubey	Asst. Manager- Member
Mr. Akhilesh Kumar	Jr. Engn. (Mines Foreman)- Member
Mr. Pramod Kumar Sahu	Jr. Engn. (Mines Foreman)- Member



(B.K. Mahapatra)  
Convenor (Quality & Environment)

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

The composite cost during the year 2016-17 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud, Orsa pat(196.36 Ha), Bhusar (65.31 Ha)& Bimarla Bauxite Mines (134.52 Ha).

SI No	Description	Budget (in Rupees) FY 2016-17	Actual (in Rupees) FY 2016-17 (from April'16 to Sep'2016)
1	Pollution Control & Environment monitoring	1540000.00	574975.50
2	Reclamation/ Back filing & Rehabilitation**	40000000.00	33837173.00
3	Green belt, Plantation & Water spraying arrangement	2100000.00	2051751.00
4	Rural Development	20000000.00	10244807.32

\*\*Part of OB removed cost.

  
(B.K. Mahapatra)  
Convenor (Quality & Environment)

**PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-16 to SEP-16**

NAME OF THE MINES	MINING LEASE AREA (In HA)	MINED OUT AREA (In HA)	BACK FILLED AREA (in HA)	PRODUCTION (In MT)	OVERBURDEN (In Cu.M)
Shrengdag Bauxite Mines	155.81	2.90	2.81	137435.00	420085.00
Gurdari Bauxite Mines	584.19	5.40	5.10	169330.00	279253.00
Jalim & Sanai	12.14	0.51	0.20	24170.00	26587.00
Serangdag	140.06	0.00	0.00	0.00	0.00
Pakhar Buxite Mines	115.13	3.01	3.57	130110.00	166727.48
Pakhar Buxite Mines	8.09	0.00	0.00	0.00	0.00
Kujam-I	80.87	2.47	2.47	86870.00	101222.20
Kujam-II	157.38	4.18	4.33	150150.00	197828.91
Amtipani	190.95	4.99	3.19	114005.00	135519.46
Chiro-Kukud	152.57	1.41	1.21	40415.00	94780.30
Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0.00
Hisri New	14.55	0.73	0.54	36358.00	25610.00
Bhusar	65.31	0.00	0.00	0.00	0.00
Bagru	75.41	0.00	0.00	0.00	0.00
<b>Minerals &amp; Minerals Limited</b>					
Pakhar Buxite Mines	109.51	3.45	4.06	154100.00	196818.79
Pakhar Buxite Mines	15.58	0.00	0.00	0.00	0.00
Bimarla Bauxite Mines	134.37	2.71	1.25	52675.00	63084.44

**Monitored water level (FY 2016-17)**

Location (Mines)	Elevation (Mtr)	Well type	Monsoon		Post Monsoon	
			Inside ML	Outside ML	Inside ML	Outside ML
Bagru Plateau (Hisri new, Bagru & Bhusar )	905	Open Well		21.32		22.70
	910	Open Well		24.38		24.56
	915	Open Well		29.00		28.43
	903	Open Well		22.81		33.15
	909	Open Well		20.15		28.72
	1000	Open Well		24.93		22.65
Pakhar Gr. Of Mines (115.13,109.507,15.58,8.0	1083	Hand Pump	35.35		31.60	
Sherengdag Plateau (Serangdag 155.81 ha, Sherengdag 140.06 Ha, Jalim & Sanai)	1027	Open Well		25.80		28.40
	1094	Hand Pump	41.74		39.55	
	1081	Hand Pump	39.60		31.30	
	1055	Hand Pump	33.00		27.50	
	1066	Hand Pump	27.75		26.25	
Gurdari	1045	Hand Pump	29.30		27.70	
	1061	Hand Pump	28.30		24.90	
	1059	Hand Pump	38.10		36.15	
	1075	Hand Pump	27.90		26.75	
	1075	Hand Pump	28.30		29.30	
Kujam I, Kujam II & Amtipani Mines	1040	Open Well		33.90		21.85
	1041	Open Well		33.65		24.80
	1064	Hand Pump	31.50		28.60	
	1052	Hand Pump	22.35			21.05
Chiro Kukud	1148	Hand Pump	33.40		28.30	
	1151	Hand Pump	37.60		31.80	
	1084	Hand Pump	34.20		33.15	