

MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. :

M&M/LHD/ENV/MoEF/

Date

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 Bimarla (134.526 ha) Bauxite Mining project of M/s Minerals & Minerals Limited located in Gumla, Jharkhand for the period April'19 to September'19.

Ref: Environmental Clearance letter no J-11015/87/2009-IA.II (M) dated 24th 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'19 to September'19.

Hope you will find the same in order.

Thanking You

Yours Sincerely

FOR Minerals & Minerals Limited

(Basudev Gangopadhyay)
GM (Geology & Environment)

Enclosure: - As Above

Copy to: Member Secretary, JSPCB, Ranchi

RO, JSPCB, Ranchi

CPCB, Zonal Office, Kolkata

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Bimarla Bauxite Mines (Area 134.526 Ha)
Environmental Clearance –Vide letter no-J-11015/87/2009-IA.II (M) dated 24th
Sep, 2013
Compliance Status, Period: April'19-September'19

SN	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. Implementations of Stipulated conditions are being complied.. The Consent to operate is valid till 30 Sep 2024.
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 conditions as laid down in the letter are being complied with.
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.	We understand Wildlife Clearance is not applicable to this project. Safeguard Measures already implemented: 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 are 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. Monitoring report attached Annexure 1.
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 and it is not intersecting ground water table. We undertake that no mining is/was carried out below ground water table and the same status quo will be maintained in future also.
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&CC.
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 carried out.	Mining is confined to above ground water table level only. Mining will not intersect the ground water table. Proper care is being taken in this regard.
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	No natural watercourse and/or water resource is being and will be obstructed due to any mining operations. No first order streams and the seasonal nallahs are originating from the mining lease.

	lease area shall 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 mined out areas with progress of mining.
11	Monitoring and management of rehabilitated areas should continue until vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Bhubaneswar on six monthly basis.	This Mine started production since 2015-16. Concurrent Backfilling has already been started and it is as per the approved mining plan. The status of backfilling is attached as Annexure-4.
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 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.	Sump, Catch drains and siltation ponds of are constructed. Place for construction of rainwater harvesting pond identified. The above activity will continue with the progress of mining. No active external dump exists as on date.

13	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.	There is no external OB dump as of now.
14	The plantation is proposed over an area of 24 ha with 2500 samplings per ha.	Total 3600 saplings have been planted in and around mine area in FY 2019-20. Total 2.66 Ha areas has been planted till date. Green belt development programme is in progress with progress of mining activities.
15	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.	Regular water sprinkling is being carried out on haul road and critical areas. Ambient Air Quality parameters conform to the norms. Report attached as Annexure 1
16	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.	Suitable measures such as catch drains, Sump, and siltation ponds of are constructed. Place for Rainwater harvesting pond is identified.
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	The EC mentions that ground water table is at depth of approx. 60 mts. The working is restricted at shallow depth max in the range of 15-18 mts. Thus there is no possibility of intersection of ground water table. Monitoring report of water quality(potable) is attached as Annexure 1

	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.	
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.	There is no spring within Mine lease area, However Monitoring of springs in nearby areas carried out. Report attached as Annexure 1
19	It shall be ensured that there is no change in the hydrology of the area due to the project.	Agreed, no change is noted as of now.
20	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Sump, Catch drains and siltation ponds of are constructed. Place for construction of rainwater harvesting pond identified. The above activity will continue with the progress of mining.
21	Appropriate mitigative measures shall be taken to prevent pollution of the all the water bodies, in consultation with the State Pollution Control Board	Suitable measures such as siltation pond, contour bunds are being taken to prevent water pollution. Drains are provided. All precautions are being taken to ensure that water does not flow outside mine lease areas. There is no contamination of water due to mining activities.
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. Measures are being taken to control emission. The vehicles are being covered with tarpaulin while transportation of mineral.

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 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.
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.	Two nos. of water tanker have been provided for sprinkling of water on haul roads and active mining areas to arrest fugitive dust. Water spraying at loading, unloading, etc is also being done regularly.
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.	As of now there is no colony within the lease hold. Suitable measures will be taken if required in future. There is no effluent generated from this mine.
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.	As a part of Community Health status check we regularly conduct medical camp in nearby areas since inception of Mine.
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. Workers employed are localities only who resides in nearby areas.
30	The critical parameters such as RSPM (Particulate matter with size	Monitoring data is uploaded in website and displayed at mines

	<p>less than 10pm i.e. PMio) and NOx 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 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www,,envfor.nican shall also bereferred in this regard for its compliance.</p>	Report enclosed as Annexure 1
31	<p>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.</p>	<p>Will be complied in due time. Progressive mine closure plan approved along Scheme of Mining. Based on the present resource estimate, and peak rated production capacity mentioned in EC, tentative balance life is around 13 yrs. However, after completion of further detailed exploration, resources estimate vis-à-vis balance life of mine may change based on final resource estimate, EC capacity and cut-off grade at that point of time.</p>

SN	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.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be	Bauxite production is within the quantity mentioned in EC. Quantum of OB, Bauxite etc. annexed as

	made.	Annexure-4.
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.	<p>Safeguard Measures Conservation measures for protection of flora and fauna being implemented and as follows:</p> <ol style="list-style-type: none"> 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	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 sensitive targets and frequencyof monitoring should be undertaken in consultation with the State Pollution Control Board.	Monitoring is being carried out and reported to concern authorities. Report attached asAnnexure-1.
5	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 /	Monitoring is being carried out and reported to concern authorities. Report attached as Annexure-1.

	Central Pollution Control Board once in six months.	
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.	Suitable water spraying arrangement is being done to control fugitive dust emissions from loading, unloading and transfer points as applicable.
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.	Measures are being taken for control of noise level. PPE's provided to workers.
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 31' 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.	Personal protective equipment's have been provided to workers. Safety training is being provided to persons working in mine. Occupational health surveillance program of the workers is being carried out.
10	A separate environmental management cell with suitable	Separate environment management cell with suitable qualified persons is

	qualified personnel directly to the Head of the Organization.	already formulated as Annexure-3.
11	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.	The fund earmarked for environmental protection measures is being budgeted separately. Annual expenditure is being reported to the Ministry. Annexure-2.
12	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.	Date of start of land development is 21.05.2015 (Opening notice sent to concerned offices) The provision related to financial closure is not applicable as it is an operational mine.
13	The Regional Office of this Ministry located at Bhubaneswar 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. Currently, the Regional Office is located at Ranchi.
14	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	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.

	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	
15	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.	Displayed.
16	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 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.	Is being complied.
17	The project authorities should advertise at least in two local	Complied. Relevant paper cutting duly submitted.

	<p>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 http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar</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

M. & M. Ltd. BIMARLA 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: Bimarla

Environmental Monitoring Report

April 2019

CONTENT

LOCATION - BIMARLA BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near Weigh Bridge
2	Near Quarry No. 1B
3	Nav Prathmik Vidyalaya Barang Path
4	Near Mine Entry Gate
AMBIENT AIR QUALITY - BUFFER ZONE	
1	Near Korle Village
2	Near Barang Village
3	Near Ghaghra Village
4	Near Bimarla Village





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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0360/2019-20	Date: 31 st 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: Near Weigh Bridge	
Sample collected on: 17.04.2019	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	68
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	6.9
05.	Ammonia (NH ₃)	µg/m ³	400	7.2
06.	Ozone (O ₃)	µg/m ³	180	11.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.32
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0361/2019-20	Date: 31 st 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: Near Quarry No 1B	
Sample collected on: 17.04.2019	

LOCATION / IDENTIFICATION: Near Quarry No 1B

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	77
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	38
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.6
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	11.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.7
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0362/2019-20	Date: 31 st 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: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 18.04.2019	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	3.4
06.	Ozone (O ₃)	µg/m ³	180	10.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0363/2019-20	Date: 31 st 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: Near Mine Entry Gate	
Sample collected on: 18.04.2019	

LOCATION / IDENTIFICATION: Near Mine Entry Gate				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.6
05.	Ammonia (NH ₃)	µg/m ³	400	5.2
06.	Ozone (O ₃)	µg/m ³	180	10.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.36
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.4
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0364/2019-20	Date: 31 st 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: Near Korle Village	
Sample collected on: 18.04.2019	

LOCATION / IDENTIFICATION: Near Korle Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	62.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	28.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	6.4
05.	Ammonia (NH ₃)	µg/m ³	400	2.5
06.	Ozone (O ₃)	µg/m ³	180	11.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0365/2019-20 **Date:** 31st 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: Near Barang Village

Sample collected on: 18.04.2019

LOCATION / IDENTIFICATION: Near Barang Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	60.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	26.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.7
05.	Ammonia (NH ₃)	µg/m ³	400	2.5
06.	Ozone (O ₃)	µg/m ³	180	11.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.26
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.1
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0366/2019-20	Date: 31st 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: Near Ghaghra Village	
Sample collected on: 18.04.2019	

LOCATION / IDENTIFICATION: Near Ghaghra Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	52.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.6
05.	Ammonia (NH ₃)	µg/m ³	400	2.3
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0367/2019-20	Date: 31 st 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: Near Bimarla Village	
Sample collected on: 18.04.2019	

LOCATION / IDENTIFICATION: Near Bimarla Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	57.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	21.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.8
05.	Ammonia (NH ₃)	µg/m ³	400	2.6
06.	Ozone (O ₃)	µg/m ³	180	11.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.32
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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KORLE-BIMARLA BAUXITE MINE – ENVIRONMENTAL MONITORING REPORT

MAY 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

CONTENT

LOCATION - BIMARLA BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near Weigh Bridge
2	Near Quarry No. 1B
3	Nav Prathmik Vidyalaya Barang Path
4	Near Mine Entry Gate
AMBIENT AIR QUALITY - BUFFER ZONE	
1	Near Korle Village
2	Near Barang Village
3	Near Ghaghra Village
4	Near Bimarla Village





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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0350/2019-20	Date: 28th 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: Near Weigh Bridge	
Sample collected on: 14.05.2019	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	73.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	7.0
05.	Ammonia (NH ₃)	µg/m ³	400	6.4
06.	Ozone (O ₃)	µg/m ³	180	11.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.7
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0351/2019-20	Date: 28 th 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: Near Quarry No 1B	
Sample collected on: 14.05.2019	

LOCATION / IDENTIFICATION: Near Quarry No 1B

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	81.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	42.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	4.6
06.	Ozone (O ₃)	µg/m ³	180	10.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0352/2019-20	Date: 28th 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: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 15.05.2019	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	68.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.1
05.	Ammonia (NH ₃)	µg/m ³	400	3.9
06.	Ozone (O ₃)	µg/m ³	180	10.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0353/2019-20	Date: 28th 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: Near Mine Entry Gate	
Sample collected on: 15.05.2019	

LOCATION / IDENTIFICATION: Near Mine Entry Gate				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	74.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	36.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.8
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	10.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.2
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0354/2019-20	Date: 28 th 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: Near Korle Village	
Sample collected on: 15.05.2019	

LOCATION / IDENTIFICATION: Near Korle Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.6
05.	Ammonia (NH ₃)	µg/m ³	400	2.9
06.	Ozone (O ₃)	µg/m ³	180	11.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0355/2019-20	Date: 28 th 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: Near Barang Village	
Sample collected on: 15.05.2019	

LOCATION / IDENTIFICATION: Near Barang Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	57.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	28.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.1
05.	Ammonia (NH ₃)	µg/m ³	400	2.7
06.	Ozone (O ₃)	µg/m ³	180	9.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.23
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.1
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0356/2019-20	Date: 28th 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: Near Ghaghra Village	
Sample collected on: 15.05.2019	

LOCATION / IDENTIFICATION: Near Ghaghra Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	55.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	26.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	2.8
06.	Ozone (O ₃)	µg/m ³	180	9.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0357/2019-20	Date: 28th 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: Near Bimarla Village	
Sample collected on: 15.05.2019	

LOCATION / IDENTIFICATION: Near Bimarla Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	60.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	2.9
06.	Ozone (O ₃)	µg/m ³	180	9.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.30
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
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KORLE-BIMARLA BAUXITE MINE – ENVIRONMENTAL MONITORING REPORT

JUNE 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

CONTENT

LOCATION - BIMARLA BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near Weigh Bridge
2	Near Quarry No. 1B
3	Nav Prathmik Vidyalaya Barang Path
4	Near Mine Entry Gate
AMBIENT AIR QUALITY - BUFFER ZONE	
1	Near Korle Village
2	Near Barang Village
3	Near Ghaghra Village
4	Near Bimarla Village





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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0259/2019-20	Date: 15 th 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: Near Weigh Bridge	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	78.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	7.2
05.	Ammonia (NH ₃)	µg/m ³	400	6.0
06.	Ozone (O ₃)	µg/m ³	180	11.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0260/2019-20	Date: 15th 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: Near Quarry No 1B	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Near Quarry No 1B

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	84.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	41.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.1
05.	Ammonia (NH ₃)	µg/m ³	400	4.3
06.	Ozone (O ₃)	µg/m ³	180	10.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.6
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0261/2019-20	Date: 15th 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: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.8
05.	Ammonia (NH ₃)	µg/m ³	400	3.5
06.	Ozone (O ₃)	µg/m ³	180	9.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.7
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0262/2019-20	Date: 15th 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: Near Mine Entry Gate	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Near Mine Entry Gate				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	33.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	5.3
06.	Ozone (O ₃)	µg/m ³	180	9.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0263/2019-20	Date: 15 th 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: Near Korle Village	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Near Korle Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	67.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.0
05.	Ammonia (NH ₃)	µg/m ³	400	2.6
06.	Ozone (O ₃)	µg/m ³	180	10.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.28
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.7
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.34

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0264/2019-20	Date: 15 th 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: Near Barang Village	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Near Barang Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	60.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	27.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.0
05.	Ammonia (NH ₃)	µg/m ³	400	2.9
06.	Ozone (O ₃)	µg/m ³	180	8.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0265/2019-20	Date: 15th 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: Near Ghaghra Village	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Near Ghaghra Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.7
05.	Ammonia (NH ₃)	µg/m ³	400	2.1
06.	Ozone (O ₃)	µg/m ³	180	8.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	1.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0266/2019-20	Date: 15th 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: Near Bimarla Village	
Sample collected on: 15.06.2019	

LOCATION / IDENTIFICATION: Near Bimarla Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	56.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.0
05.	Ammonia (NH ₃)	µg/m ³	400	2.5
06.	Ozone (O ₃)	µg/m ³	180	9.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.6
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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KORLE-BIMARLA BAUXITE MINE – ENVIRONMENTAL MONITORING REPORT

JULY 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

LOCATION – BIMARLA BAUXITE MINE	
A.	AMBIENT AIR QUALITY – CORE ZONE
1	Near Weigh Bridge
2	Near Quarry No. 1B
3	Nav Prathmik Vidyalaya Barang Path
4	Near Mine Entry Gate
B.	AMBIENT AIR QUALITY – BUFFER ZONE
1	Near Korle Village
2	Near Barang Village
3	Near Ghaghra Village
4	Near Bimarla Village
C.	SURFACE WATER ANALYSIS
1	Bimarla Bauxite Mines
D.	AMBIENT NOISE MONITORING
1	Bimarla Bauxite Mines
E.	SPOT NOISE MONITORING
1	Bimarla Bauxite Mine – Near Dumper
F.	RUNOFF WATER ANALYSIS
1	Bimarla Bauxite Mines





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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0208/2019-20	Date: 12th August, 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 Weigh Bridge	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	7.9
05.	Ammonia (NH ₃)	µg/m ³	400	6.0
06.	Ozone (O ₃)	µg/m ³	180	7.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.3
10.	Arsenic (As)	ng/m ³	06	1.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0209/2019-20	Date: 12th August, 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 Quarry No 1B	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Near Quarry No 1B

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	71.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	4.6
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.6
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0210/2019-20	Date: 12th August, 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: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	58.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	26.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.7
05.	Ammonia (NH ₃)	µg/m ³	400	3.0
06.	Ozone (O ₃)	µg/m ³	180	5.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.1
10.	Arsenic (As)	ng/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0211/2019-20	Date: 12th August, 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 Mine Entry Gate	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Near Mine Entry Gate				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	64.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.8
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	7.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.30
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	1.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0212/2019-20	Date: 12 th August, 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 Korle Village	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Near Korle Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	49.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	22.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	2.9
06.	Ozone (O ₃)	µg/m ³	180	4.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0213/2019-20	Date: 12th August, 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 Barang Village	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Near Barang Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	44.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	20.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.7
05.	Ammonia (NH ₃)	µg/m ³	400	2.5
06.	Ozone (O ₃)	µg/m ³	180	4.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0214/2019-20	Date: 12 th August, 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 Ghaghra Village	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Near Ghaghra Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	39.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	18.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	1.8
06.	Ozone (O ₃)	µg/m ³	180	3.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.20
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.21

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0215/2019-20	Date: 12 th August, 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 Bimarla Village	
Sample collected on: 13.07.2019	

LOCATION / IDENTIFICATION: Near Bimarla Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	43.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	20.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	2.6
06.	Ozone (O ₃)	µg/m ³	180	4.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.30
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0216/2019-20	Date: 12th August, 2019
Sample described by customer : SURFACE WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: SURFACE WATER	
Marks on Sample: Location: Bimarla Bauxite Mine	
Sample collected on: 13.07.2019	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	5 Max	APHA 22 nd 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	0.27	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.1	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	318	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	28	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	33	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	30	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
11	Sulphate (as SO ₄)	mg/l	26.9	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.18	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	5.9	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84





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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Continuation Sheet MEEPL/AUG0216/2019-20

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.10	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	6.8	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.06	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7-8	APHA 20 th ED. Method 4500-o g.

Conclusion: The Physical & Chemical Analysis report indicates that water is not contaminated.

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0217/2019-20	Date: 12 th August, 2019
Sample described by customer : Measurement of Noise	
Client Name : Hindalco Industries Limited	
Client Address : Lohardaga	
Postal Code : 835203	
State : Jharkhand	
Country : India	
Sample Description : Measurement of Noise	
Sampling Method : Instrumental, using Sound level Metter	
Data Collection Date: 13.07.2019	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Bimarla Bauxite Mine	dB (A) L_{eq}	75	63.7	70	55.9

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0218/2019-20	Date: 12 th August, 2019
Sample described by customer: Measurement of Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 13.07.2019	

Location/Identification	Unit	Limit (day)	Result
Bimarla Mine – Near Dumper	dB (A) L _{eq}	75	70.8

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0219/2019-20			Date: 12th August, 2019		
Sample described by customer: Runoff Water					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Runoff Water – Surface Water					
Marks on Sample: Location: Runoff Water – Bimarla Bauxite Mines					
Quantity: 4 liters.					
Sample collected on: 13.07.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	7.9	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	83	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	6.0	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	29.2	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1392	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	6.8	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
10.	Temperature		30.2	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
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KORLE-BIMARLA BAUXITE MINE – ENVIRONMENTAL MONITORING REPORT

AUGUST 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

CONTENT

LOCATION - BIMARLA BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near Weigh Bridge
2	Near Quarry No. 1B
3	Nav Prathmik Vidyalaya Barang Path
4	Near Mine Entry Gate
AMBIENT AIR QUALITY - BUFFER ZONE	
1	Near Korle Village
2	Near Barang Village
3	Near Ghaghra Village
4	Near Bimarla Village





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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0210/2019-20	Date: 14 th 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: Near Weigh Bridge	
Sample collected on: 14.08.2019	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	23.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	15.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.6
05.	Ammonia (NH ₃)	µg/m ³	400	2.9
06.	Ozone (O ₃)	µg/m ³	180	7.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.13
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	0.95
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0211/2019-20

Date: 14th 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: Near Quarry No 1B

Sample collected on: 14.08.2019

LOCATION / IDENTIFICATION: Near Quarry No 1B

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	18.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	11.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.9
05.	Ammonia (NH ₃)	µg/m ³	400	3.1
06.	Ozone (O ₃)	µg/m ³	180	8.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.17
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	0.81
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.11

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0212/2019-20	Date: 14th 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: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 14.08.2019	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	12.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	7.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	0.93
05.	Ammonia (NH ₃)	µg/m ³	400	2.3
06.	Ozone (O ₃)	µg/m ³	180	7.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.07
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.74
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,
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E-mail: mahabalaranchi@gmail.com

Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0213/2019-20	Date: 14 th 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: Near Mine Entry Gate	
Sample collected on: 14.08.2019	

LOCATION / IDENTIFICATION: Near Mine Entry Gate				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	16.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	10.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.8
05.	Ammonia (NH ₃)	µg/m ³	400	2.6
06.	Ozone (O ₃)	µg/m ³	180	6.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.19
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.91
12.	Benzo (a) Pyrene	µg/m ³	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0214/2019-20	Date: 14 th 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: Near Korle Village	
Sample collected on: 14.08.2019	

LOCATION / IDENTIFICATION: Near Korle Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	11.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	6.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	0.98
05.	Ammonia (NH ₃)	µg/m ³	400	2.5
06.	Ozone (O ₃)	µg/m ³	180	8.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.05
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.6
10.	Arsenic (As)	ng/m ³	06	0.79
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0215/2019-20

Date: 14th 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: Near Barang Village

Sample collected on: 14.08.2019

LOCATION / IDENTIFICATION: Near Barang Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	13.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	7.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.1
05.	Ammonia (NH ₃)	µg/m ³	400	1.9
06.	Ozone (O ₃)	µg/m ³	180	6.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.08
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	0.65
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.13

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0216/2019-20	Date: 14th 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: Near Ghaghra Village	
Sample collected on: 14.08.2019	

LOCATION / IDENTIFICATION: Near Ghaghra Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	10.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	6.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	0.69
05.	Ammonia (NH ₃)	µg/m ³	400	2.2
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.06
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	0.88
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.97
12.	Benzo (a) Pyrene	µg/m ³	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0217/2019-20	Date: 14th 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: Near Bimarla Village	
Sample collected on: 14.08.2019	

LOCATION / IDENTIFICATION: Near Bimarla Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	15.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	9.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.4
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	5.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.09
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	0.69
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.83
12.	Benzo (a) Pyrene	µg/m ³	01	0.12

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 / ecoventures@eco-ventures.in

Mahabal Enviro Engineers Pvt. Ltd.

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

KORLE-BIMARLA BAUXITE MINE – ENVIRONMENTAL MONITORING REPORT

SEPTEMBER 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

CONTENT

LOCATION - BIMARLA BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near Weigh Bridge
2	Near Quarry No. 1B
3	Nav Prathmik Vidyalaya Barang Path
4	Near Mine Entry Gate
AMBIENT AIR QUALITY - BUFFER ZONE	
1	Near Korle Village
2	Near Barang Village
3	Near Ghaghra Village
4	Near Bimarla Village





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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0165/2019-20

Date: 18th 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 Weigh Bridge**

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Near Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	30.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.1
05.	Ammonia (NH ₃)	µg/m ³	400	4.4
06.	Ozone (O ₃)	µg/m ³	180	6.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.15
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0166/2019-20

Date: 18th 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 Quarry No 1B

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Near Quarry No 1B

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	37.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	21.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.6
05.	Ammonia (NH ₃)	µg/m ³	400	5.1
06.	Ozone (O ₃)	µg/m ³	180	7.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.13
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	1.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.26

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0167/2019-20

Date: 18th 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: Nav Prathmik Vidyalaya Barang Path

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	15.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	9.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.4
05.	Ammonia (NH ₃)	µg/m ³	400	3.7
06.	Ozone (O ₃)	µg/m ³	180	5.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.08
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.1
10.	Arsenic (As)	ng/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.17

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0168/2019-20

Date: 18th 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 Mine Entry Gate**

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Near Mine Entry Gate

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	23.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	14.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.4
05.	Ammonia (NH ₃)	µg/m ³	400	5.3
06.	Ozone (O ₃)	µg/m ³	180	8.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.12
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0169/2019-20

Date: 18th 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 Korle Village**

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Near Korle Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	18.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	10.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.3
05.	Ammonia (NH ₃)	µg/m ³	400	3.5
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.07
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0170/2019-20

Date: 18th 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 Barang Village

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Near Barang Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	14.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	8.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.9
05.	Ammonia (NH ₃)	µg/m ³	400	3.5
06.	Ozone (O ₃)	µg/m ³	180	6.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.09
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0171/2019-20

Date: 18th 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 Ghaghra Village

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Near Ghaghra Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	16.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	9.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.0
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	5.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.06
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	1.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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Hindalco Industries: Bimarla

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0172/2019-20

Date: 18th 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 Bimarla Village**

Sample collected on: 14.09.2019

LOCATION / IDENTIFICATION: Near Bimarla Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	14.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	10.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.6
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	7.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.05
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.3
10.	Arsenic (As)	ng/m ³	06	1.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.14

For Mahabal Enviro Engineers Pvt. Ltd.

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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)

MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. :

Annexure - 3

Date

Date: 10.01.19

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 Minerals & Minerals Industries Limited.

1. Mr. Jitender Kumar - Mines Manager (Coordinator)
2. Mr. Mihir Barai - Geologist - Member
3. Mr. Chandra Kant Dubey - Asst. Manager- Member
4. Mr. Pramod Kumar Sahu - Jr. Engn. (Mines Foreman)- 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	
Minerals & Minerals Limited									
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


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