

HIL/LHD/ENV/MoEF/

Date: 27.11.2019

To,
The Additional Principal Chief Conservator of Forest (C)
Ministry of Environment, Forests and Climate Changes
Regional Office (ECZ), Ranchi-834002.

Sub: Compliance Report of EC conditions for Hisri New (14.55 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga District of Jharkhand for the period April'19 to September'19.

Ref: Environmental Clearance letter no J-11015/531/2007-IA II (M) dated 17th June 2011

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Hisri New (14.55 ha) Bauxite Mining project of M/s Hindalco Industries Limited**, located in Lohardaga District of Jharkhand for the period April'19 to September'19.

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR **M/s Hindalco Industries 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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Compliance of conditions laid down in Environmental Clearance

HISRI (NEW) BAUXITE MINES (14.55 Ha)

Period: April'19 to September'19

Environmental Clearance letter no J-11015/531/2007-IA II (M) dated 17th June 2011

| SI No | Conditions | Compliance Status |
|----------------------------|---|---|
| Specific Conditions | | |
| 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 has been obtained prior to start of Mining. Existing consent to operate is valid till 31 Dec 2020. The implementations of stipulated conditions are being implemented. |
| 2 | The environmental clearance is subject to forestry clearance. | Forest clearance is obtained. |
| 3 | The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use. | Entire land has been acquired for mining purpose as per applicable laws. |
| 4 | The mining operation shall be restricted to above ground water table and it should not intersect the ground water table. In case of working below ground water table, prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained, for which a detailed hydro – geological study shall be carried out. | Present depth of mining is 12- 15mtr (maximum). Water table is below 80-90 mts below mining horizon, Thus there is no chance to intersect ground water table during mining operation. Working zone will be restricted to above ground water table in future also. We undertake that no mining is/was carried out below ground water table and the same statusco will be maintained in future also. |
| 5 | The Project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected. | It is being ensured. No natural water course has been obstructed. |

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| 6 | <p>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.</p> | <p>Sequential backfilling and reclamation of mined out area are being exercised. Topsoil is being spread on backfilled area for reclamation of the area.</p> <p>The top soil is being temporarily stored at earmarked site (s) for its further use for reclamation over backfilled area.</p> |
| 7 | <p>The solid waste generated during the mining operation shall be backfilled and there shall be no external overburden dump left at the end of the mine life. The entire excavated area of 12.19 ha. shall be backfilled and reclaimed by plantation. The backfilling should be carried out in such a manner that it is restored to the normal ground level. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six month basis.</p> | <p>Overburden and waste rock are being used for simultaneous back filling. Data pertaining to backfilling is enclosed as Annexure-4.</p> <p>Backfilling is continuous process and is being done in commensurate with the progress of mining.</p> <p>Monitoring and management of rehabilitated areas continuing through supervision.</p> <p>There is no external dump exist within mine lease area.</p> |

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| 8 | <p>Catch drains and siltation ponds of appropriate size should 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, the Kisco Nadi, the Sukri Nadi, the Chungahat nallah, the Barki nallah and other 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.</p> <p>Garland drain, 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, the Kisco Nadi, the Sukri Nadi, the Chungahat nallah, the Barki nallah and other 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 setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p> | <p>No run off is being generated from mining activities. However, to collect and manage rainwater during monsoon drains, pit sumps are made, part of mined out area is used as settling tank. Settled water is being used for sprinkling of quarry, roads, green belt development, etc.</p> <p>Catch drains, siltation ponds, garland drain, settling tank etc being constructed as and when required and is being maintained with progress of mining.</p> <p>No external dump exists within mine lease area as on date.</p> |
| 9 | <p>Dimension of the retaining wall at the toe of the sub-grade, dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.</p> | <p>Noted. There is no external dump exists within mine lease area.</p> |
| 10 | <p>Plantation shall be raised in an area of 12.7 ha including a 7.5 m. wide green belt in the safety zone around the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO / Agriculture Department. At least 1500 trees per year shall be planted with a tree density of 1000 trees per hectare. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.</p> | <p>Plantation is carried out progressively with progress of mining in and around Mine lease area.</p> <p>Total 3096 saplings have been planted during above period within this mining lease.</p> <p>Green belt development programme is in progress with progress of mining activities.</p> |

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| 11 | <p>Effective safe guard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels to particulate matter such as around loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p> | <p>Effective safe guard measures, such as regular water sprinkling are being carried out in critical areas prone to air pollution. Regular Ambient Air Quality monitoring is being carried out.</p> <p>AAQ quality results are attached carried out by authorized agency. The parameters are found within prescribed limit.</p> |
| 12 | <p>The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.</p> | <p>System is already in place. Suitable conservation measures to augment ground water resources in area are being taken viz contour bunds, gullies, sump, rainwater harvesting structure etc in mining lease area.</p> |
| 13 | <p>Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in each season)] shall be carried out in consultation with the State Ground Water Board/ Central Ground water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional office Bhubaneswar, The Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.</p> | <p>The water table is at depth of 90-120 mts</p> <p>We are not using ground water for any mining purpose. It is not intersecting ground water table during mining operation.</p> <p>Drinking water quality report is attached as Annexure 1</p> |
| 14 | <p>Monitoring to 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.</p> | <p>The quality parameter of nearby spring has been monitored, report is attached.</p> |
| 15. | <p>It shall be ensured that there is no change in the hydrology of the area due to the project.</p> | <p>Being adhered to. No change on hydrology is noticed.</p> |

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| 16. | The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) required for the project. | Water is collected from rain water harvesting pond of Bagru plateau. We are using harvested water only for mining purposes. No ground water or water from natural surface water bodies is being used for mining purposes. |
| 17. | Suitable rain water harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board. | Suitable rain water harvesting measures on long term basis have been planned Viz. rain water harvesting structure. |
| 18. | Appropriate mitigative measures shall be taken to prevent pollution of the Kisco Nadi, the Sukri Nadi and other rivers in the buffer zone of the mine, in consultation with the State Pollution Control Board. | Appropriate mitigative measures have been taken to prevent pollution of the Kisco Nadi, the Sukri Nadi and other rivers in the buffer zone of the mine. viz- contour bunds, gullies in the mining lease area is so designed that all the rain water within the lease are collected in to the pit, No water allowed to flow out of the lease. |
| 19 | Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of mineral from mine face to the Beneficiation plant. The vehicles should be covered with a tarpaulin and shall not be overloaded. | Minimum vehicles are being used for transport. Regular maintenance of vehicles are undertaken to minimize vehicular emission. Care is taken on regular basis to arrest spillage/fugitive dust emission. Bauxite is also being transported by ropeway from mines to Lohardaga siding. |
| 20 | Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented. | Blasting time is fixed during Lunch Time i.e. 1.00 PM - 2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. Efforts and mitigative measure are being taken to mitigate impact of blasting. |
| 21 | Drills shall either be operated with dust extractors or equipped with water injection system. | Wet drilling is done in drill holes intermittently for dust suppression by pumping water. |
| 22 | 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 | Water sprinkling is being carried out regularly at mineral handling area, loading and unloading areas to control the dust. |

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| | also have efficient dust control arrangements. These should be properly maintained and operated. | |
| 23 | Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations. | There is no likely hood of effluent from mine, hence ETP is not required. The sewage water for working population is collected through Septic Tank/Soak Pit and treated in Sewage Treatment Plant already existing in adjoining Bagru ML. |
| 24 | 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. | Being getting done through medical camp. |
| 25 | 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. | System is already in place |
| 26. | 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 the temporary structures to be removed after the completion of the project. | System is already in place. |
| 27 | The critical parameters such as RSPM (Particulate matter with size less than 10 μm (i.e. PM_{10} , $\text{PM}_{2.5}$) and NO_x in the ambient air within the impact zone, peak particle velocity at 300 m. distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharge 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. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance. | Being carried out. Monitoring report enclosed. |

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| 28 | A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval. | Progressive Mine Closure Plan duly approved by Indian Bureau of Mines is with us. FMCP (part) is approved by IBM. FMCP for entire lease will be prepared in due time. Based on the present resource estimate, and peak rated production capacity mentioned in EC, the tentative balance life is around 7 years. However, after completion of further detailed exploration, the resources estimate vis-à-vis balance life of the mine may change based on final resource estimate, EC capacity and cut-off grade at that point of time. |
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General Conditions:

| Sl No | Conditions | Compliance Status |
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| 1 | No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests. | Noted and being adhered to. |
| 2 | No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made. | Bauxite productions are in line with calendar plan. Details of OB and bauxite production attached as Annexure 4. |
| 3 | Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department. | Conservation measures for protection of flora and fauna in core & buffer zone has been drawn up in consultation with local forest and wildlife department. Wild life conservation plan has been submitted to forest department |
| 4 | Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 µm (i.e. PM ₁₀) PM _{2.5}) & NO _x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. | Being carried out. Enclosed as Annexure-1. |

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| 5 | Data on ambient air quality RSPM (Particulate matter with size less than 10 µm i.e. PM ₁₀) & NO _x should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months. | Being carried out. Enclosed as Annexure-1. |
| 6 | Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained. | Water spraying arrangements on haul roads, loading and unloading and at transfer points have been provided and properly maintained. |
| 7 | Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs. | Measures are being taken for control of noise levels below 85 dB(A) in work environment. Workers engaged in operation of HEMM, etc. has been provided with ear plug / muffs. |
| 8 | Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May, 1993 and 31 st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents. | No industrial waste water being generated from mining operation. |
| 9 | <p>Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects.</p> <p>Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.</p> | <p>Complied. Use of personal protective equipment (PPE) by the individuals is being ensured. All the mine workers are being regularly and periodically sent to our own hospital for health checkup for any contraction of diseases due to exposure in dusty and noisy areas.</p> <p>Training on safety, health and environmental aspects of mining is being regularly imparted through VT centre and also through various other training programmes conducted by the State Government, recognized agencies, etc</p> |

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| 10 | A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization. | Separate environmental management Cell (EMC) has been constituted and is functioning effectively. Copy enclosed 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 Bhubaneshwar. | Year wise expenditure is being reported to the Ministry and its Regional Office located at Ranchi. Annexure-2. |
| 12 | The project authorities should inform to the Regional Office located at Bhubaneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work. | This is an operating Mine and provision related to financial closure is not applicable. |
| 13 | The Regional Office of this Ministry located at Bhubaneshwar 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. |
| 14 | The project proponent shall submit six monthly report on the status of the compliance of the stipulated environmental Clearance conditions including results of monitoring data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Officer, Bhubaneshwar, the respective Zonal office of Central Pollution Control Board 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, Bhubaneshwar, the respective Zonal Office of Central Pollution Control Board and State Pollution Control Board. | Duly submitted. |
| 15 | A copy of clearance letter shall be sent by the proponent to concerned Panchyat, Zila Parisad/ Municipal Corporation, Urban | Duly submitted. |

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| | Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent. | |
| 16 | State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days. | Displayed. |
| 17 | The environmental statement for each financial year ending 31 st March in Form – V as is mandated to be submitted by the project proponent to the concerned Stated 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 the compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneshwar by e-mail. | Submitted. |
| 18. | The Company shall submit within 3 month their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to bring into focus any infringements/ deviation/ violation of environmental or forest norms/ conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance with environmental issues and ensuring compliance with Environment Clearance conditions and (iii) System of reporting of non compliance / violation of environmental norms to the Board of Directors of the Company and / or stakeholders or shareholders. | Already Submitted. |
| 19 | The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance | Complied and informed. |

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| | <p>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 Bhubneshwar.</p> | |
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Eco Ventures Pvt. Ltd.

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

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Mahabal Enviro Engineers Pvt. Ltd.

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

HISRI (NEW) BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

APRIL 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Branch Office:

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CONTENT

| LOCATION - HISRI (NEW) BAUXITE MINE | |
|-------------------------------------|---|
| AMBIENT AIR QUALITY - CORE ZONE | |
| 1 | Near Water Pump |
| 2 | Near Old Rest Shelter |
| 3 | Near Old Plantation (North West Corner) |
| 4 | Hisri New (Southern Area) |
| | |





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

April 2019

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|---|---|
| Report No: MEEPL/MAY0324/2019-20 | 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 Water Pump | |
| Sample collected on: 09.04.2019 | |

| LOCATION / IDENTIFICATION: Near Water Pump | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 48.3 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 25.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.0 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.1 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 2.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.8 |
| 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 | 1.3 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 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
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

April 2019

| | |
|---|---|
| Report No: MEEPL/MAY0325/2019-20 | 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 Old Rest Shelter | |
| Sample collected on: 09.04.2019 | |

| LOCATION / IDENTIFICATION: Near Old rest Shelter | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 55.1 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 27.4 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.3 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 5.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 6.2 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 10.2 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.21 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.01 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 2.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.4 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.0 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.3 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

April 2019

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|---|---|
| Report No: MEEPL/MAY0326/2019-20 | 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 Old Plantation (North West Corner) | |
| Sample collected on: 09.04.2019 | |

| LOCATION / IDENTIFICATION: Near Old Plantation (North West Corner) | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 66.4 |
| 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 | 3.1 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 5.3 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.0 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 10.7 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.21 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.02 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 2.6 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.1 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.27 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Mobile No: +91 9431.102.102 / +91 9955.358.262,

E-mail: mahabalanranchi@gmail.com

Hindalco Industries : Hisri (New)

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0327/2019-20

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: **Hisri New (Southern Area)**

Sample collected on: 09.04.2019

LOCATION / IDENTIFICATION: Hisri New (Southern Area)

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 61.3 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 30.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.3 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.1 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 10.1 |
| 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 | 2.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.30 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

| | |
|---|---|
| Report No: MEEPL/MAY0314/2019-20 | 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 Daldaliya Village | |
| Sample collected on: 06.04.2019 | |

| LOCATION / IDENTIFICATION: Near Daldaliya Village | | | | |
|---|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 50.2 |
| 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 | 2.5 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.1 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.1 |
| 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 | 1.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 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
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

| | |
|---|---|
| Report No: MEEPL/MAY0315/2019-20 | 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: Aditya School Gangupara | |
| Sample collected on: 06.04.2019 | |

LOCATION / IDENTIFICATION: Aditya School Gangupara

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 47 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 20 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.7 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.9 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 8.8 |
| 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 | 1.0 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.8 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.3 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.3 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

| | |
|---|---|
| Report No: MEEPL/MAY0316/2019-20 | 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: Ropeway Unloading Station | |
| Sample collected on: 06.04.2019 | |

| LOCATION / IDENTIFICATION: Ropeway Unloading Station | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 54 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 25 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 3.1 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 5.3 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.6 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 10.2 |
| 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 | 2.0 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.1 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.27 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

| | |
|---|---|
| Report No: MEEPL/MAY0317/2019-20 | 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: Ropeway Angle Station | |
| Sample collected on: 06.04.2019 | |

| LOCATION / IDENTIFICATION: Ropeway Angle Station | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 50 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 34 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.0 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.5 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.1 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.4 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.26 |
| 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 | 2.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.30 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

Regd. Office: 2/37, Sarvapriya Vihar, Near IIT Gate, New Delhi-110016

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

E: ecoventures.mumbai@gmail.com / ecoventures@eco-ventures.in

Mahabal Enviro Engineers Pvt. Ltd.

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

HISRI (NEW) BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

MAY 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

| LOCATION - HISRI (NEW) BAUXITE MINE | |
|-------------------------------------|---|
| AMBIENT AIR QUALITY - CORE ZONE | |
| 1 | Near Water Pump |
| 2 | Near Old Rest Shelter |
| 3 | Near Old Plantation (North West Corner) |
| 4 | Hisri New (Southern Area) |
| | |





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

MAY 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0314/2019-20 | 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 Water Pump | |
| Sample collected on: 07.05.2019 | |

| LOCATION / IDENTIFICATION: Near Water Pump | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 52.9 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 24.5 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.1 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.4 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 2.2 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.5 |
| 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 | 1.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 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
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

MAY 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0315/2019-20 | 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 Old Rest Shelter | |
| Sample collected on: 07.05.2019 | |

LOCATION / IDENTIFICATION: Near Old rest Shelter

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 58.7 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 29.2 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.3 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.7 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.6 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.21 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.01 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 2.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.4 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.0 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.3 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

MAY 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0316/2019-20 | 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 Old Plantation (North West Corner) | |
| Sample collected on: 07.05.2019 | |

| LOCATION / IDENTIFICATION: Near Old Plantation (North West Corner) | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 61.1 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 30.3 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.8 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.6 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 10.1 |
| 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 | 1.8 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.1 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.27 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0317/2019-20

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: **Hisri New (Southern Area)**

Sample collected on: 07.05.2019

LOCATION / IDENTIFICATION: Hisri New (Southern Area)

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 70.6 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 33.9 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 3.5 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.3 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.7 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.4 |
| 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 | 2.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.30 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

MAY 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0304/2019-20 | 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 Daldaliya Village | |
| Sample collected on: 04.05.2019 | |

| LOCATION / IDENTIFICATION: Near Daldaliya Village | | | | |
|---|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 57.5 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 24.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.7 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.5 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.0 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 8.7 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.24 |
| 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 | 2.0 |
| 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
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

MAY 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0305/2019-20 | 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: Aditya School Gangupara | |
| Sample collected on: 04.05.2019 | |

LOCATION / IDENTIFICATION: Aditya School Gangupara

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 51.4 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 23.7 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.5 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.2 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 2.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 8.3 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.21 |
| 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 | 1.6 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.2 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.3 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

MAY 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0306/2019-20 | 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: Ropeway Unloading Station | |
| Sample collected on: 04.05.2019 | |

| LOCATION / IDENTIFICATION: Ropeway Unloading Station | | | | |
|--|--|-------------------|----------------|---------------|
| 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 | 27.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 3.3 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 5.1 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.9 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 10.7 |
| 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 | 2.3 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.1 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.27 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bagru

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0307/2019-20

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: **Ropeway Angle Station**

Sample collected on: 04.05.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 53.5 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 31.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.2 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.8 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.0 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.24 |
| 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 | 2.0 |
| 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.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

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

HISRI (NEW) BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

JUNE 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

| LOCATION - HISRI (NEW) BAUXITE MINE | |
|-------------------------------------|---|
| AMBIENT AIR QUALITY - CORE ZONE | |
| 1 | Near Water Pump |
| 2 | Near Old Rest Shelter |
| 3 | Near Old Plantation (North West Corner) |
| 4 | Hisri New (Southern Area) |
| | |





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JUNE 2019

| | |
|---|--|
| Report no: MEEPL/JULY0223/2019-20 | 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 Water Pump | |
| Sample collected on: 07.06.2019 | |

| LOCATION / IDENTIFICATION: Near Water Pump | | | | |
|--|--|-------------------|----------------|---------------|
| 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 | 28.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.5 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.9 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 2.0 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.1 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.23 |
| 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 | 2.0 |
| 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
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JUNE 2019

| | |
|---|--|
| Report no: MEEPL/JULY0224/2019-20 | 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 Old Rest Shelter | |
| Sample collected on: 07.06.2019 | |

LOCATION / IDENTIFICATION: Near Old rest Shelter

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 53.1 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 25.6 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.5 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.1 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 8.3 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.27 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.01 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 2.3 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.4 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.0 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.3 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JUNE 2019

| | |
|---|--|
| Report no: MEEPL/JULY0225/2019-20 | 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 Old Plantation (North West Corner) | |
| Sample collected on: 07.06.2019 | |

| LOCATION / IDENTIFICATION: Near Old Plantation (North West Corner) | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 66.7 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 28.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.3 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.4 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.9 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.5 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.23 |
| 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 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.27 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JUNE 2019

| | |
|---|--|
| Report no: MEEPL/JULY0226/2019-20 | 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: Hisri New (Southern Area) | |
| Sample collected on: 07.06.2019 | |

| LOCATION / IDENTIFICATION: Hisri New (Southern Area) | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 62.8 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 30.5 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.9 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.1 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.0 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.23 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.02 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 2.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.30 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0304/2019-20 | 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 Daldaliya Village | |
| Sample collected on: 05.06.2019 | |

| LOCATION / IDENTIFICATION: Near Daldaliya Village | | | | |
|---|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 52.7 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 22.4 |
| 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 | 8.7 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.23 |
| 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 | 2.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.6 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.30 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0305/2019-20 | 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: Aditya School Gangupara | |
| Sample collected on: 05.06.2019 | |

LOCATION / IDENTIFICATION: Aditya School Gangupara

| 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 | 24.5 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.8 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.2 |
| 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 | 0.21 |
| 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 | 1.6 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 0.5 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.3 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

| | |
|---|--|
| Report no: MEEPL/JUNE0306/2019-20 | 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: Ropeway Unloading Station | |
| Sample collected on: 05.06.2019 | |

| LOCATION / IDENTIFICATION: Ropeway Unloading Station | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 54.8 |
| 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 | 3.0 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.3 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.0 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 9.2 |
| 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 | 2.3 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.6 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.1 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.27 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JUNE0307/2019-20

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: **Ropeway Angle Station**

Sample collected on: 05.06.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 50.6 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 32.5 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.0 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.7 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.2 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 8.8 |
| 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 | 1.8 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 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.

Vijay Pandey
SENIOR EXECUTIVE





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Mahabal Enviro Engineers Pvt. Ltd.

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

HISRI (NEW) BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

JULY 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

| LOCATION - HISRI (NEW) BAUXITE MINE | |
|--|---|
| AMBIENT AIR QUALITY - CORE ZONE | |
| 1 | Near Water Pump |
| 2 | Near Old Rest Shelter |
| 3 | Near Old Plantation (North West Corner) |
| 4 | Hisri New (Southern Area) |
| RUNOFF WATER | |
| 1 | Hisri (New) Bauxite Mine |
| AMBIENT NOISE MONITORING | |
| 1 | Hisri (New) Bauxite Mine |





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JULY 2019

| | |
|---|--|
| Report no: MEEPL/AUG0143/2019-20 | 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 Water Pump | |
| Sample collected on: 05.07.2019 | |

| LOCATION / IDENTIFICATION: Near Water Pump | | | | |
|--|--|-------------------|----------------|---------------|
| 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 | 20.9 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.4 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.5 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 2.0 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 6.1 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.23 |
| 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 | 1.8 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.22 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JULY 2019

| | |
|---|--|
| Report no: MEEPL/AUG0144/2019-20 | 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 Old Rest Shelter | |
| Sample collected on: 05.07.2019 | |

LOCATION / IDENTIFICATION: Near Old rest Shelter

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 47.7 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 23.2 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.9 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.8 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.0 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 5.5 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.25 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.01 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 1.8 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.4 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.6 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.25 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JULY 2019

| | |
|---|--|
| Report no: MEEPL/AUG0145/2019-20 | 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 Old Plantation (North West Corner) | |
| Sample collected on: 05.07.2019 | |

| LOCATION / IDENTIFICATION: Near Old Plantation (North West Corner) | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 50.2 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 24.0 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.1 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.9 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.7 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 4.5 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.21 |
| 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 | 0.25 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0146/2019-20

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: **Hisri New (Southern Area)**

Sample collected on: 05.07.2019

LOCATION / IDENTIFICATION: Hisri New (Southern Area)

| 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 | 33.8 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 3.3 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 5.2 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 5.3 |
| 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 | 1.7 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.3 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.1 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.28 |

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JULY 2019

| Report no: MEEPL/AUG0147/2019-20 | | | 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 – Hisri (New) Bauxite Mines | | | | | |
| Quantity: 4 liters. | | | | | |
| Sample collected on: 05.07.2019 | | | | | |
| 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 | 73 | mg/l | 100 |
| 3. | BOD @ 27°C | IS 3025 (Part 44): 1993, RA2003, Amd.1 | 6.9 | mg/l | 30 |
| 4. | COD | IS 3025 (Part 58): 1993, RA2006, Amd.1 | 34 | 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 | 1625 | 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 | 7.2 | mg/l | 75 |
| 9. | Iron (as Fe) | APHA 22 nd EDN 2012-3120B | 1.0 | mg/l | 3 |
| 10. | Temperature | | 31.0 | °C | Shall not exceed 5°C above the receiving water temperature |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

JULY 2019

| | |
|---|--|
| Report no: MEEPL/AUG0148/2019-20 | 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: 05.07.2019 | |

| Location/Identification | Unit | Limit (day) | Result | Limit (night) | Result |
|---------------------------|------------------------|-------------|--------|---------------|--------|
| Hisri (New) Bauxite Mines | dB (A) L _{eq} | 75 | 67.0 | 70 | 52.5 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

| | |
|---|--|
| Report no: MEEPL/AUG0129/2019-20 | 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 Daldaliya Village | |
| Sample collected on: 03.07.2019 | |

| LOCATION / IDENTIFICATION: Near Daldaliya Village | | | | |
|---|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 38.8 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 18.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.2 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.9 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 2.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 5.3 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.21 |
| 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 | 1.1 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.6 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.25 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

| | |
|---|--|
| Report no: MEEPL/AUG0130/2019-20 | 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: Aditya School Gangupara | |
| Sample collected on: 03.07.2019 | |

LOCATION / IDENTIFICATION: Aditya School Gangupara

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 42.2 |
| 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 | 1.8 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.5 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 2.3 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 5.5 |
| 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 | 1.0 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 0.72 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 0.5 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.3 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

| | |
|---|--|
| Report no: MEEPL/AUG0131/2019-20 | 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: Ropeway Unloading Station | |
| Sample collected on: 03.07.2019 | |

| LOCATION / IDENTIFICATION: Ropeway Unloading Station | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 46.0 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 21.6 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 3.1 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 4.5 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.8 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 6.2 |
| 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 | 1.5 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.4 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.25 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0132/2019-20

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: **Ropeway Angle Station**

Sample collected on: 03.07.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 40.6 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 19.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.2 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.8 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.2 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 6.5 |
| 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 | 1.3 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 2.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.2 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.27 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

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

HISRI (NEW) BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

SEPTEMBER 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

| LOCATION - HISRI (NEW) BAUXITE MINE | |
|-------------------------------------|---|
| AMBIENT AIR QUALITY - CORE ZONE | |
| 1 | Near Water Pump |
| 2 | Near Old Rest Shelter |
| 3 | Near Old Plantation (North West Corner) |
| 4 | Hisri New (Southern Area) |
| | |





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0127/2019-20

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 Water Pump

Sample collected on: 06.09.2019

LOCATION / IDENTIFICATION: Near Water Pump

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 37.3 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 16.1 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.7 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.2 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 5.8 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 7.7 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.14 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.01 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 1.3 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.7 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 0.8 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.21 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

| | |
|---|---|
| Reports no: MEEPL/OCT0128/2019-20 | Date: 18 th 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 Old Rest Shelter | |
| Sample collected on: 06.09.2019 | |

| LOCATION / IDENTIFICATION: Near Old rest Shelter | | | | |
|--|--|-------------------|----------------|---------------|
| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 31.2 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 13.8 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 3.1 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 1.9 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.1 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 7.3 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.07 |
| 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 | 1.1 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.0 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.15 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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

Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0129/2019-20

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 Old Plantation (North West Corner)

Sample collected on: 06.09.2019

LOCATION / IDENTIFICATION: Near Old Plantation (North West Corner)

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 22.3 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 10.8 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.6 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 2.2 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.7 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 6.8 |
| 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 | 1.8 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.9 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.13 |

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0130/2019-20

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: **Hisri New (Southern Area)**

Sample collected on: 06.09.2019

LOCATION / IDENTIFICATION: Hisri New (Southern Area)

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 26.7 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 12.0 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.4 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 1.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 5.5 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 8.1 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.10 |
| 08. | Lead (Pb) | µg/m ³ | 1.0 | 0.04 |
| 09. | Nickel (Ni) | ng/m ³ | 20 | 1.8 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.0 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 2.0 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.23 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0115/2019-20

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 Daldaliya Village

Sample collected on: 04.09.2019

LOCATION / IDENTIFICATION: Near Daldaliya Village

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 19.6 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 10.4 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.3 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 1.0 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 4.2 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 5.8 |
| 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 | 0.9 |
| 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





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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

| | |
|---|---|
| Reports no: MEEPL/OCT0116/2019-20 | Date: 18 th 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: Aditya School Gangupara | |
| Sample collected on: 04.09.2019 | |

| LOCATION / IDENTIFICATION: Aditya School Gangupara | | | | |
|--|--|-------------------|----------------|---------------|
| 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 | 9.2 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 1.1 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 2.3 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.8 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 6.7 |
| 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 | 1.0 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 0.6 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 1.2 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.12 |

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0117/2019-20

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: Ropeway Unloading Station

Sample collected on: 04.09.2019

LOCATION / IDENTIFICATION: Ropeway Unloading Station

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 43.3 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 20.7 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.8 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 3.6 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 5.1 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 7.4 |
| 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 | 2.1 |
| 10. | Arsenic (As) | ng/m ³ | 06 | 1.4 |
| 11. | Benzene (C ₆ H ₆) | µg/m ³ | 05 | 0.9 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.24 |

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Hisri (New)

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0118/2019-20

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: **Ropeway Angle Station**

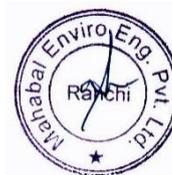
Sample collected on: 04.09.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

| Sl. No. | PARAMETERS | UNIT | Standard Limit | Concentration |
|---------|--|-------------------|----------------|---------------|
| 01. | Particulate Matter (size less than 10 µm) PM ₁₀ | µg/m ³ | 100 | 38.8 |
| 02. | Particulate Matter (size less than 2.5 µm) PM _{2.5} | µg/m ³ | 60 | 17.6 |
| 03. | Sulphur Dioxide (SO ₂) | µg/m ³ | 80 | 2.0 |
| 04. | Nitrogen Dioxide (NO ₂) | µg/m ³ | 80 | 1.4 |
| 05. | Ammonia (NH ₃) | µg/m ³ | 400 | 3.8 |
| 06. | Ozone (O ₃) | µg/m ³ | 180 | 8.0 |
| 07. | Carbon Monoxide (CO) | mg/m ³ | 02 | 0.11 |
| 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 | 2.1 |
| 12. | Benzo (a) Pyrene | µg/m ³ | 01 | 0.20 |

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



Annexure-2

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

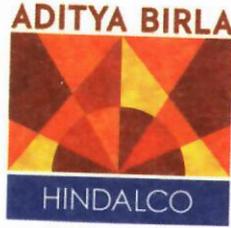
The composite cost during the year 2019-20 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha), Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud (152.57 ha), Orsa pat (196.36 Ha), Bhusar (65.31 Ha) and Bimarla Bauxite Mines (134.52 Ha).

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

**Part of OB removed cost.



(Basudev Gangopadhyay)
Convenor (Quality & Environment)



Annexure - 3

Date: 10.01.19

Office Order

Environmental Cell has been re-constituted at Hisri (new) Bauxite Mines (Area 14.55 Ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Ajay Pandey (Mines Manager) (Coordinator)
2. Dr. Chitra Mandol –Medical Officer (Member)
3. Mr. Sunil Kumar Chaudhary (Mines Forman)
4. Mr. Ashish kumar (Asst. Engineer)

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


Basudev Gangopadhyay
Convenor (Quality & Environment)