

HIL/LHD/ENV/MoEF/ 68

Date: 24.05.2021

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

**Sub:** Compliance Report of EC conditions for Kujam-II Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period October'20 to March'21.

**Ref:** Environmental Clearance letter no J-11015/297/2011M (M) dated 21<sup>st</sup> July 2015.

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Kujam-II (157.38 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period October'20 to March'21.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
157.38	300000	24.03.2006 to 23.03.2056

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

(Basudev Gangopadhyay)  
GM (Geology & Environment)

Enclosure: - As Above

CC: [ro.ranchi-mef@gov.in](mailto:ro.ranchi-mef@gov.in), [mef@ori.nic.in](mailto:mef@ori.nic.in), [mef@nic.in](mailto:mef@nic.in), [mef.or@nic.in](mailto:mef.or@nic.in), [mscb.cpcb@nic.in](mailto:mscb.cpcb@nic.in), [zokolkatta.cpcb@nic.in](mailto:zokolkatta.cpcb@nic.in), [ranchiispcb@gmail.com](mailto:ranchiispcb@gmail.com), [roranchi47@gmail.com](mailto:roranchi47@gmail.com)

**Name of the Project** : **Kujam II Bauxite Mine (157.38 ha)**  
**M/s Hindalco Industries Ltd**

**Environment Clearance No & date** : **J-11015/297/2011-IA.II (M) dated 21.07.2015**

**Period of compliance Report** : **From 1<sup>st</sup> October 2020 to 31<sup>st</sup> March 2021**

S No	Specific Conditions	Compliance
i	Implementation of all the conditions as specified in earlier EC vide no. J-11015/242/2005-1A.II (M), dated 14.08.2006 and shall be complied by M/s Hindalco Industries Limited.	Implemented. Certified compliance reports duly submitted to MoEF by Regional Office, Ranchi.
ii	Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Jharkhand and any other Court of Law, if any, as may be applicable to this project.	Noted.
iii	The environmental clearance is valid for 13 years as the life of mine is 13 years.	Noted, This may extend subject to enhancement of reserve in due course of mining in line with EIA notification as applicable.
iv	Environmental clearance is subject to obtaining clearance, if any, under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.	We understand this is not applicable to this project. Mine is located outside eco sensitive zone.
v	The Project Proponent shall obtain Consent to Operate from the State Pollution Control Board, Jharkhand and effectively implement all the conditions stipulated therein.	Existing consent to Operate is valid till 31.12.2025.
vi	No mining activities will be allowed in forest area for which the Forest Clearance is not available.	There is no forest area involved within the lease.
vii	Project Proponent has to conduct a study from an Institution of Repute on the impact of Bauxite dust on crop productivity for agricultural land located around mines and mitigation measures to be implemented by Project Proponent to reduce the impact.	Study conducted and report prepared. It may be noted that agriculture activity is being carried out in nearby areas and no adverse effect of mining operation is noticed. Mitigation measures suggested in study report is being implemented.
viii	Project Proponent has to implement the Recommendation by the Institute for Crops most suited in this environment and training to the farmers to switch over to new cropping system which will sustain nutrient loading.	Study conducted and report prepared. It may be noted that agriculture activity is being carried out in nearby areas and no adverse effect of mining operation is noticed. Mitigation measures suggested in study report is being implemented.

ix	Implementation of the Recommendations of National Institute of Miners Health for ensuring good occupational environment for mine workers.	Occupational health study is being done as per the recommendation of the safety conference proposal.
x	Use of mechanical devices with total mechanization and reducing use of explosives.	We are using Nonel for blasting and the use of explosive is optimum. Rock breaker is being used to reduce the use of explosive. Soft strata is being completely excavated without use of any explosive. We are using rock breaker as mechanical devices to reduce use of explosives. We are also exploring use of eccentric ripper for excavation of hard strata to reduce the use of explosive.
xi	Concurrent reclamation of mined out areas.	Concurrent back filling/ reclamation are being carried out in mined out areas.
xii	Use of effective sprinkler system to suppress fugitive dust on haul road and other transport road and comprehensive study for slope stabilization of mine benches and OB dumps in one year.	Effective water sprinkling is being done to suppress fugitive dust on haul road by mobile water tanker during dry season. No external dump as on date.
xiii	Implementation of Action Plan on the issues raised during the Public Hearing. The proponent shall complete all the tasks as per the action plan submitted with the budgetary provisions during the public hearing held on 11.07.2013. The issues raised during Public Hearing were discussed during the Meeting, which inter-alia, included, local employment, regular water spraying to prevent pollution and socio economic development i.e. water facilities, medical and education etc. As per the villager's requirements, it was informed by the Proponent that they would prefer to take care of local employment, assistance in medical, drinking water and education facilities etc. These have been incorporated in the action plan with budgetary provisions.	Being implemented as per the issues raised during the Public Hearing dated 11.07.2013.
xiv	Implementation of Recommendation of Compliance Report by Regional Office of Ministry of Environment, Forest and Climate Change.	Recommendations by Regional Office, Ranchi are being complied.
xv	Washing of all transport vehicles should be done inside the mining lease.	Being complied.
xvi	A comprehensive ore evacuation plan for all existing mines of the Project Proponent in the area may be made by streamlining transport of ore based on proper study.	Evacuation plan prepared and transport has been streamlined. SOP are framed and in place.
xvii	Regular and periodical medical examination of the workers engaged in the project shall be carried out and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly.	Regular and periodical medical examination of the workers engaged in project is being carried out and records are being maintained.

xviii	Implementation of Environment Management Policy of the Company w.r.t, judicious use of Mineral resources for growth & development synchronizing mining & environment with prosperity.	Environment Management Policy of the Company w.r.t, judicious use of Mineral resources for growth & development synchronizing mining & environment with prosperity is being implemented.  Mining is being carried out in a scientific and eco-friendly manner as per Mining Plan.
xix	Specific programmes be initiated especially covering education, health care, livelihood generation, infrastructure development & promotion of sports & culture for SC/ST population; Regular monitoring of ground water table to be carried out, as also the depth of water available in the network of existing wells, by constructing new piezometers as required.	All these aspects are covered under CSR activities being carried out in and around the area. Piezometer has been installed to regular monitoring of ground water.
xx	Effective safeguard measures, such as regular water sprinkling, shall be carried out in critical areas prone to air pollution and having high levels of PM10 and PM2.5 such as haul roads, loading and unloading points and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Regular water sprinkling is being carried out in critical areas such as haul roads, loading and unloading points and transfer points. Ambient Air Quality parameters are found within the norms prescribed by the Central Pollution Control Board in this regard.
xxi	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. Occupational health and safety measures for workers who are having some ailments like BP, diabetes, or are habitual smokers, should have health check-up once in six months.	Pre-placement medical examination and periodical medical examination of the workers engaged in the project are being carried out and records maintained as per statute.
xxii	Stratified layer system of plantation to be adopted in consultation with the State Govt., which would effectively mitigate the additional dust, sound and vibration.	Plantation is being carried out in consultation with local forest Dept. Total 2063 nos. of saplings have been planted during FY 2020-21 within this lease. In addition to this agricultural activities (bio plantation) is going on reclaimed land.  Green belt development programme is in progress with progress of mining activities.
xxiii	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and ground water for the project.	Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation. No natural water resource/ground water is being used for mining purpose.  No Objection Certificate (NOC) for

		ground water abstraction for Kujam II mines has been obtained for drinking purpose only.
xxiv	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment, Forest and Climate Change and Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.	The mining operations are restricted to above ground water table only and in future also same will be adhered to.
xxv	The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain 'PUC' certificate from all the vehicles from authorized pollution testing Centre.	Mobile water tanker with sprinkling facility has been provided a long haul roads, loading, unloading & at transfer points to arrest dust emission. Regular maintenance of vehicles are undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.
xxvi	There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis in consultation with Regional Director, Central Groundwater Board and implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.	A detail rain water harvesting plan to augment ground water has been prepared and suitable measures like water harvesting pond, garland drain etc. are created for augmentation of ground water in Mine.
xxvii	Regular monitoring of ground water table to be carried out at the upstream and depth of water available in the dug well is to be measured. Monitoring to be done by establishing a network of existing wells and constructing new piezometers.	Monitoring of ground water table is being carried out regularly and reported along with six monthly compliance reports. Piezometer has been installed to regular monitoring of ground water.
xxviii	Monitoring of Ambient Air Quality to be carried out based on the Notification 2009, as amended from time to time by the Central Pollution Control Board.	AAQM monitoring report is carried out regularly. Report is attached as Annexure-1.
xxix	The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations.	It is being ensured that no natural water course and/or water resource is being and will be obstructed due to any mining operations.
xxx	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. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time. The maximum height of the dumps shall not exceed 8m and width 20 m and overall slope of the dumps shall be maintained to 45°. The OB dumps should be	Top soil is being stacked separately as and when required & used for reclamation and rehabilitation at appropriate time.  There is no external OB dump. The excavated area are being back filled concurrently and back filled area is used for afforestation/agricultural activity as required

	<p>scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. The entire excavated area shall be backfilled and afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change and its Regional Office located at Ranchi on six monthly basis.</p>	<p>Monitoring and management of rehabilitated areas is continuing through supervision.</p>
xxxii	<p>Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and OB dumps to prevent run off of water and flow of sediments directly into the river and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly de silted particularly after monsoon and maintained properly. The drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dumps to prevent run off of water and flow of sediments directly into the river 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 settling of sit material. Sedimentation pits shall be constructed at the corners of the garland drains and de silted at regular intervals.</p>	<p>No run-off is generated from mining activities. However, to collect &amp; manage rain water during monsoon, part of mined out area is used as settling tank for the runoff. Rain water stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary.</p> <p>Catch drains, Garland drains of appropriate size have been constructed both around the mine pit to prevent run off of water and flow of sediments directly into the agricultural field and water bodies.</p> <p>Sump of adequate capacity is being provided and maintained as required.</p> <p>There is no external OB dump.</p>
xxxiii	<p>Dimension of the retaining wall at the toe of over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.</p>	<p>There is no external dump within mine lease area as on date. Hence not applicable.</p>
xxxiiii	<p>Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM10 and PM2.5 such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard. Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.</p>	<p>Regular water sprinkling is being carried out in critical areas prone to air pollution and having high levels of PM10 and PM2.5 such as haul road, loading and unloading point and transfer points. Ambient Air Quality parameters found within the norms prescribed by the Central Pollution Control Board in this regard.</p> <p>The quality parameter of the surface water has been monitored, report is attached as Annexure 1</p>
xxxv	<p>Blasting operation shall be carried out only during</p>	<p>Blasting time is fixed during Lunch Time</p>

	the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. Drills shall either be operated with dust extractors or equipped with water injection system.	i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur.  All efforts are being taken to mitigate impact of blasting.
xxxv	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, Mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Local laborers are employed who resides nearby mines. Necessary infrastructures for office staff are in place at Netarhat plateau. Toilets constructed under CSR programmes. Drinking water, mobile health care facility are provided under CSR programmes.
xxxvi	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest and Climate Change. 5 years in advance of final mine closure for approval.	A Final Mine Closure Plan along with details of corpus fund will be submitted to the Ministry of Environment, Forest and Climate Change in appropriate time for approval as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same.  Based on present resource estimate and peak rated production capacity mentioned in EC, the tentative balance life is around 6 years. However, based on further availability of geological data with progress of mining in future, resources estimate vis-à-vis EC capacity and cut-off grade at that point of time ,balance life of the mine may change based on final resource estimate..

### General Conditions

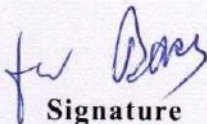
S No	Conditions	Compliance
i	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment, Forest and Climate Change.	Noted.
ii	No change in the calendar plan including excavation, quantum of bauxite ore and waste should be made.	Calendar plan including excavation, quantum of bauxite ore and waste is being done as per IBM approved mining plan scheme in scientific manner. Report is attached herewith as Annexure 4.
iii	The critical parameters such as PM10 (size less than 10 micro meter), PM2.5 (size less than 2.5 micro meter), NO in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged	Monitoring of AAQ and water quality is being done. Monitored data is being 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

	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, Forest and Climate Change, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	domain.  Report is attached as Annexure 1.
iv	Four ambient air quality-monitoring stations should be established in the core zone as well as buffer zone for PM10, PM2.5, SO2 & NOx monitoring. Location of the stations should be decided based on the ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. Data on ambient air quality should be regularly submitted to the Ministry including its Regional Office located at Ranchi and the State Pollution Control Board/Central Pollution Control Board once in six month.	We have already established four ambient air quality monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as Annexure 1.
v	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Mobile water tanker with sprinkling facility has been provided along the haul roads, loading, unloading & at transfer points to arrest dust emission.
vi	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Necessary measures are being implemented to control of noise levels below 85 dB (A). PPEs are provided to workers.
vii	Regular monitoring of water quality upstream and downstream of water bodies shall be carried out and record of monitoring data should be maintained and submitted to the Ministry of Environment, Forest and Climate Change, its Regional Office, Ranchi, Central Ground water Authority, Regional Director, Central Ground water Board, State Pollution Control Board and Central Pollution Board.	Water quality upstream and downstream of water bodies are being monitored, report is attached as Annexure_1.
viii	Regular monitoring of ground water level and quality shall be carried out in constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year - pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Ranchi, Central Ground Water Authority and Regional Director, Central Ground	We are not using ground water for any mining purpose. There is no chance of intersection of ground water table during mining operation at present and in future.  Piezometer has been installed for monitoring of ground water level. Water quality and level report are attached herewith as Annexure 1.



	Water Board.	
ix	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19m May, 1993 and 31' December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no industrial wastewater generation within mine lease area. We are not discharging any waste water outside mine lease area. However, for washing of HEMM, Effluent treatment mechanism (Oil and grease trap) has been installed in Kujam mine.
x	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	As it is operating mines -PPE's such as safety shoes, ear plug, goggles are being provided.  Periodic training on safety & occupational health is being imparted to workers and health checks up conducted.
xi	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.	A separate environmental management cell has been established under the control of a Senior Executive attached as Annexure 3.
xii	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 Ranchi.	Year wise expenditure is being reported to the ministry and its Regional Office located at Ranchi. Report is attached as Annexure 2.
xiii	The project authorities should inform to the Regional Office located at Ranchi 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 operative mines hence provision related to financial closure is not applicable.
xiv	The Regional Office of this Ministry located at Ranchi 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.	Noted & Agreed.
xv	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest and Climate Change, its Regional Office, Ranchi, Central Pollution Control	Six monthly reports on status of the EC is being duly and timely submitted.

	Board and State Pollution Control Board.	
xvi	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest and Climate Change, its Regional Office, Ranchi, Central Pollution Control Board and State Pollution Control Board,	Six monthly report on the status of the EC is being duly and timely submitted.
xvii	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Copy of Clearance letter submitted to concern panchayat.
xviii	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	Copy of the clearance letter provided to the concerned Offices.
xix	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment, Forest and Climate Change at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Ranchi	Published in two newspapers widely circulated (Hindustan and Dainik Jagran) on 27.07.2015. Paper cutting enclosed.

  
Signature

## Photographs of Kujam-II Bauxite Mine



**(Pic: Reclaimed area after mining)**



**(Pic: Reclaimed area after mining)**



**(Pic: Paddy cultivation over reclaimed area)**



**(Pic: Rain harvesting pond developed after mining for the purpose of fisheries, water sprinkling & villagers use)**



**(Pic: Rain harvesting pond developed after mining for the purpose of fisheries, water sprinkling & villagers use)**



**(Pic: Pears plantation over the reclaimed area)**



**(Pic: Plantation over the reclaimed area)**



**(Pic: Plantation over the reclaimed area)**



**(Pic: Water sprinkling on mines haul road)**



**(Pic: Trucks ready for dispatch with proper tarpaulin cover)**



**(Pic: Washing platform and oil & grease trap)**





# Eco Ventures Pvt. Ltd.

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

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

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

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

**OCTOBER 2020**

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

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





# Mahabal Enviro Engineers Pvt. Ltd.

**Branch Office:**

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

## CONTENT

	LOCATION – KUJAM – II
<b>A.</b>	<b>AMBIENT AIR QUALITY – CORE ZONE</b>
1	Kujam – II Weigh Bridge
2	Jawadih Quarry
3	Nawatoli Quarry
4	Bhattipat
<b>B.</b>	<b>AMBIENT NOISE</b>
<b>C.</b>	<b>SPOT NOISE</b>
<b>D.</b>	<b>DRINKING WATER ANALYSIS</b>
<b>E.</b>	<b>STREAM WATER – UP STREAM &amp; DOWN STREAM</b>
1	Dhardhari Nala





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0549/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Kujam – II Weigh Bridge</b>	
Sample collected on: <b>20.10.2020</b>	

LOCATION / IDENTIFICATION: Kujam – II Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	86
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	49
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	8.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.39
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.4
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0550/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> 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: <i>Jawadih Quarry</i>	
Sample collected on: <i>20.10.2020</i>	

LOCATION / IDENTIFICATION: Jawadih Quarry				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	94
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	47
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	8.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.42
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.32

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0551/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: <b>Lohardaga</b>	
Postal Code: <b>835203</b>	
State: <b>Jharkhand</b>	
Country: <b>India</b>	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Nawatoli Quarry</b>	
Sample collected on: <b>20.10.2020</b>	

LOCATION / IDENTIFICATION: Nawatoli Quarry				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	81
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	38
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.37
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.26

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0552/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: <b>Lohardaga</b>	
Postal Code: <b>835203</b>	
State: <b>Jharkhand</b>	
Country: <b>India</b>	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Bhattipat</b>	
Sample collected on: <b>20.10.2020</b>	

LOCATION / IDENTIFICATION: Bhattipat				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	77.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	38.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	7.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.35
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.9
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0553/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer :</b> Measurement of Noise	
<b>Client Name :</b> Hindalco Industries Limited	
<b>Client Address :</b> Lohardaga	
<b>Postal Code :</b> 835203	
<b>State :</b> Jharkhand	
<b>Country :</b> India	
<b>Sample Description :</b> Measurement of Noise	
<b>Sampling Method :</b> Instrumental, using Sound level Metter	
<b>Data Collection Date:</b> 20.10.2020	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Kujam – II Bauxite Mines	dB (A) $L_{eq}$	75	68.1	70	56.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0554/2020-21

Date: 30<sup>th</sup> November, 2020

Sample described by customer : Measurement of Spot Noise

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: Measurement of Spot Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 20.10.2020

Location/Identification	Unit	Limit (day)	Result
Kujam-II Mines (157.38 ha.) Compressor at Quarry No.4	dB (A) $L_{eq}$	75	73.1

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

Report No.: MEEPL/NOV/0556/2020-21	Date: 30 <sup>th</sup> November, 2020
Sample described by customer : DRINKING WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER	
Marks on Sample: Location: Kujam – II Drinking Water	
Sample collected on: 20.10.2020	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.2	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	183	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO <sub>3</sub> )	mg/l	25.5	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	29.1	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	5.5	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	4.2	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

## Continuation Sheet MEEPL/NOV/0556/2020-21

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.4	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.12	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.10	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	27	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.6	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NH <sub>3</sub> -F, 4-115
20	Iron (as Fe)	mg/l	0.15	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 <sup>nd</sup> ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 <sup>nd</sup> ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-S <sub>2</sub> -C 4-175 & F 4-178





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

Continuation Sheet  
MEEPL/NOV/0556/2020-21

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
<b>Microbiological Analysis</b>					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9- 76
<b>Pesticides Residues</b>					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
<b>Remarks: N.D- Not Detected</b>					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

<b>Report No.:</b> MEEPL/NOV/0557/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 2020
<b>Sample described by customer :</b> STREAM WATER	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample Type:</b> STREAM WATER	
<b>Marks on Sample:</b> Location: Dhardhari Nala	
<b>Quantity:</b> 5 L X 2 No. PVC Can	
<b>Sample collected on:</b> 20.10.2020	

Sl. No.	Parameters	Unit	Result UP STREAM	Result DOWN STREAM	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	<2	5 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.31	0.35	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.8	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	<0.5	0.2 min	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	366	405	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO <sub>3</sub> )	mg/l	38	42	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	42	47	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	31	35	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
11	Sulphate (as SO <sub>4</sub> )	mg/l	25.6	25.9	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.21	0.21	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.8	6.5	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

OCTOBER 2020

Continuation Sheet  
MEEPL/NOV/0557/2020-21

SL No.	Parameters	Unit	Result UP STREAM	Result DOWN STREAM	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.13	0.14	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.9	9.1	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.07	0.07	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	0.02	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7.3	7-8	APHA 20 <sup>th</sup> ED. Method 4500-o g.

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2020

<b>Report No:</b> MEEPL/NOV/0562/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: <b>Lohardaga</b>	
Postal Code: <b>835203</b>	
State: <b>Jharkhand</b>	
Country: <b>India</b>	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <i>Near Dipa Kujam Village</i>	
Sample collected on: <b>21.10.2020</b>	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	67.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	30.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.31
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.8
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	3.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.33

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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

Mobile No: +91 9431.102.102 / +91 9955.358.262,

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

Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2020

<b>Report No:</b> MEEPL/NOV/0563/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> 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: <i>Near Chathasari Village</i>	
Sample collected on: <i>21.10.2020</i>	

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	59.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	24.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.35
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.7
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2020

<b>Report No:</b> MEEPL/NOV/0564/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: <b>Near Shakhuapani Village</b>	
<b>Sample collected on:</b> 21.10.2020	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	52.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	29.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.4
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.25

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2020

<b>Report No:</b> MEEPL/NOV/0565/2020-21	<b>Date:</b> 30 <sup>th</sup> November, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: <b>Near Pakri Gada Village</b>	
<b>Sample collected on:</b> 21.10.2020	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	55.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.33
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.6
10.	Arsenic (As)	µg/m <sup>3</sup>	06	2.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# Eco Ventures Pvt. Ltd.

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

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

E: [ecoventures.mumbai@gmail.com](mailto:ecoventures.mumbai@gmail.com) / [ecoventures@eco-ventures.in](mailto:ecoventures@eco-ventures.in)

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

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

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

**NOVEMBER 2020**

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

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





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

NOVEMBER 2020

## CONTENT

	LOCATION – KUJAM – II
	AMBIENT AIR QUALITY – CORE ZONE
1	Kujam – II Weigh Bridge
2	Jawadih Quarry
3	Nawatoli Quarry
4	Bhattipat





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0482/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Kujam – II Weigh Bridge</b>	
Sample collected on: <b>20.11.2020</b>	

LOCATION / IDENTIFICATION: Kujam – II Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	73.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	38.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	7.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/DEC/0483/2020-21

Date: 28<sup>th</sup> December, 2020

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: *Jawadih Quarry*

Sample collected on: *20.11.2020*

### LOCATION / IDENTIFICATION: Jawadih Quarry

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	58.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	30.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.06
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.1
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0484/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: <b>Lohardaga</b>	
Postal Code: <b>835203</b>	
State: <b>Jharkhand</b>	
Country: <b>India</b>	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Nawatoli Quarry</b>	
Sample collected on: <b>20.11.2020</b>	

### LOCATION / IDENTIFICATION: Nawatoli Quarry

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	67.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0485/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: <b>Lohardaga</b>	
Postal Code: <b>835203</b>	
State: <b>Jharkhand</b>	
Country: <b>India</b>	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Bhattipat</b>	
Sample collected on: <b>20.11.2020</b>	

LOCATION / IDENTIFICATION: Bhattipat				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	52.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.26
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.77
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.23

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0490/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: <b>Lohardaga</b>	
Postal Code: <b>835203</b>	
State: <b>Jharkhand</b>	
Country: <b>India</b>	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Near Dipa Kujam Village</b>	
Sample collected on: <b>21.11.2020</b>	

### LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	59.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	27.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.21

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0491/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> 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: <i>Near Chathasari Village</i>	
Sample collected on: <i>21.11.2020</i>	

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	55.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.22
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	0.9
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.23

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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

Mobile No: +91 9431.102.102 / +91 9955.358.262,

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

Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2020

<b>Report no:</b> MEEPL/DEC/0492/2020-21	<b>Date:</b> 28 <sup>th</sup> December, 2020
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: <b>Near Shakhuapani Village</b>	
<b>Sample collected on:</b> 21.11.2020	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	60.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	29.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.22
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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

Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2020

Report no: MEEPL/SEP/0493/2020-21	Date: 28 <sup>th</sup> December, 2020
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: <i>Near Pakri Gada Village</i>	
Sample collected on: <i>21.11.2020</i>	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	54.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.3
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.1
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.84
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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# Eco Ventures Pvt. Ltd.

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

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

E: [ecoventures.mumbai@gmail.com](mailto:ecoventures.mumbai@gmail.com) / [ecoventures@eco-ventures.in](mailto:ecoventures@eco-ventures.in)

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

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

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

**DECEMBER 2020**

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

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





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

Hindalco Industries : Kujam – II

Environmental Monitoring Report

DECEMBER 2020

## CONTENT

	LOCATION – KUJAM – II
	AMBIENT AIR QUALITY – CORE ZONE
1	Kujam – II Weigh Bridge
2	Jawadih Quarry
3	Nawatoli Quarry
4	Bhattipat





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0382/2020-21

Date: 25<sup>th</sup> January, 2021

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: *Kujam – II Weigh Bridge*

Sample collected on: **18.12.2020**

### LOCATION / IDENTIFICATION: Kujam – II Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	48.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	23.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.3
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0383/2020-21

Date: 25<sup>th</sup> January, 2021

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: **Jawadih Quarry**

Sample collected on: **18.12.2020**

### LOCATION / IDENTIFICATION: Jawadih Quarry

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	52.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	29.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0384/2020-21

Date: 25<sup>th</sup> January, 2021

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: *Nawatoli Quarry*

Sample collected on: **18.12.2020**

### LOCATION / IDENTIFICATION: Nawatoli Quarry

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	57.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0385/2020-21

Date: 25<sup>th</sup> January, 2021

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: *Bhattipat*

Sample collected on: 18.12.2020

### LOCATION / IDENTIFICATION: Bhattipat

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	45.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	21.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0390/2020-21	Date: 25 <sup>th</sup> January, 2021
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: <i>Near Dipa Kujam Village</i>	
Sample collected on: 19.12.2020	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	61.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	33.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.21
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.98
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/JAN/0391/2020-21

Date: 25<sup>th</sup> January, 2021

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: *Near Chathasari Village*

Sample collected on: **19.12.2020**

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	48.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	22.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.16
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.88
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.17

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2020

<b>Report No. :</b> MEEPL/JAN/0392/2020-21	<b>Date:</b> 25 <sup>th</sup> January, 2021
<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: <b>Near Shakhuapani Village</b>	
<b>Sample collected on:</b> 19.12.2020	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	41.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	20.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.13
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.4
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2020

Report No. : MEEPL/OCT/0493/2020-21

Date: 25<sup>th</sup> January, 2021

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 Pakri Gada Village*

Sample collected on: 19.12.2020

### LOCATION / IDENTIFICATION: Near Pakri Gada Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	49.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	23.6
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.4
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.15
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# Eco Ventures Pvt. Ltd.

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

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

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

**JANUARY 2021**

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

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





# Mahabal Enviro Engineers Pvt. Ltd.

**Branch Office:**

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Mobile No: +91 9431.102.102 / +91 9955.358.262,

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

Hindalco Industries : Kujam – II

Environmental Monitoring Report

JANUARY 2021

## CONTENT

	LOCATION – KUJAM – II
A.	DRINKING WATER ANALYSIS





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

JANUARY 2021

<b>Report No.:</b> MEEPL/FEB/0387/2020-21	<b>Date:</b> 10 <sup>th</sup> February, 2021
<b>Sample described by customer :</b> DRINKING WATER	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample Type:</b> DRINKING WATER	
<b>Marks on Sample:</b> Location: Kujam – II Drinking Water	
<b>Sample collected on:</b> 19.01.2021	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.2	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	252	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO <sub>3</sub> )	mg/l	27.2	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	29.3	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	5.7	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	4.2	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190







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Hindalco Industries : Kujam – II

Environmental Monitoring Report

JANUARY 2021

## Continuation Sheet MEEPL/FEB/0387/2020-21

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.4	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.13	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.10	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	29	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.8	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NH <sub>3</sub> -F, 4-115
20	Iron (as Fe)	mg/l	0.14	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 <sup>nd</sup> ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 <sup>nd</sup> ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> ED. 2012, 4500-S2-C 4-175 & F 4-178





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

JANUARY 2021

Continuation Sheet  
MEEPL/FEB/0387/2020-21

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
<b>Microbiological Analysis</b>					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9- 76
<b>Pesticides Residues</b>					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
<b>Remarks: N.D- Not Detected</b>					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# YUGANTAR BHARATI

## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by :- National Accreditation Board for Testing Laboratory (NABL) & Jharkhand State Pollution Control Board (JSPCB)

Certified by :- An ISO 9001:2015 & BS OHSAS 18001 : 2007



Certificate No. - TC 7813

### ANALYTICAL TEST REPORT

Atmospheric Pollution Test Report		URL (Unique Lab Report) No.	TC78132120000082F
Report Release Date	01 <sup>st</sup> February, 2021	Report ID	YBAEEL- 201224 - 122233-A01
Sample Description	Ambient Air Quality	Job code/ Ref. no.	YBAEEL/WA/L/A/Jan. -21/40
Type of Industry	Bauxite Mines	Work Order No./ Date	JSPCB Application No.- 9623541
Issue to	M/s Hindalco Industries Limited Kujam – II, Bauxite Mine, Kujam&Chirodih, Gumla, Jharkhand.		
Sampling Period	27/01/2021 – 28/01/2021	Mode of sample collection	By YBAEEL Team
Sampling Protocol	IS:5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13)		
Sampling Locations	A. Near Weight Bridge (23°18'50.59"N, 84°17'30.39"E)	B. Jawadih Quarry (23°18'56.89"N, 84°17'30.27"E)	
	C. Nawatoli Quarry (23°18'34.89"N, 84°17'54.25"E)	D. Bhatlipat (23°18'34.89"N, 84°17'54.25"E)	
Meteorological Cond.	W.C.– Clear	RH % - 52%	Temp. - 25°C
			W.D.– East to West
Sample receipt Date	28/01/2021	Analysis Started on	28/01/2021
		Analysis completed on	30/01/2021

#### \*\*Test Results\*\*

Parameters	Test Method	Units	Sampling Location				NAAQS (2009)
			Site A	Site B	Site C	Site D	
Particulate matter (PM <sub>10</sub> )	IS:5182 (P-23) 2006	µg/m <sup>3</sup>	86.0	81.0	88.0	79.0	100
Particulate matter (PM <sub>2.5</sub> )	USEPA -40 CFR (PART 50) (50.7)	µg/m <sup>3</sup>	34.0	32.8	35.3	31.0	60
Sulphure Dioxide (SO <sub>2</sub> )	IS:5182 (P-2) 2001 RA 2012	µg/m <sup>3</sup>	11.1	10.0	9.5	8.9	80
Nitrogen Dioxide (NO <sub>2</sub> )	IS:5182 (P-6) 2006 RA 2012	µg/m <sup>3</sup>	19.3	18.2	17.3	16.8	80

#### \*\*End of Report\*\*

Remarks	Samples Comply with the prescribed specification as per NAAQS 2009.	
Abbreviation	MDL : Minimum detection limit, BDL : Below detection limit,	
Note	The parameters marked with * are not accredited by NABL.	
Specific contractual notes	All values are expressed in as unit.	
	The results listed refer only to the tested sample and applicable parameter.	
	This report, in full or in part, shall not be used for advertising or as evidence in any court of law	
	This report cannot be reproduced, except when in full, without the written permission of the Lab In-charge	
	The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise	
	The liability of the laboratory is limited to the invoiced amount	
	All disputes are subjected to the Ranchi Jurisdiction	
Tested by	Verified by	Issued by
Amit Kumar Sinha	Brij Nandan Kumar	Umesh Das
Lab Analyst	Section In-Charge	Technical Manager

Authorized Signatory  
Atmospheric Pollution  
Yugantar Bharati Analytical &  
Environmental Engineering Laboratory

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Ph : 098351-97960, 098357-86677, Email - ybaeel@gmail.com, Web - https://ybaeel.in





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District – Ranchi 834009

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

FEBRUARY 2021

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

FEBRUARY 2021

## CONTENT

	LOCATION – KUJAM – II
	AMBIENT AIR QUALITY – CORE ZONE
1	Kujam – II Weigh Bridge
2	Jawadih Quarry
3	Nawatoli Quarry
4	Bhattipat





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Hindalco Industries : Kujam – II

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0432/2020-21

Date: 25<sup>th</sup> March, 2021

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: *Kujam – II Weigh Bridge*

Sample collected on: **19.02.2021**

### LOCATION / IDENTIFICATION: Kujam – II Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	54
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	31
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.2
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0433/2020-21

Date: 25<sup>th</sup> March, 2021

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: **Jawadih Quarry**

Sample collected on: **19.02.2021**

### LOCATION / IDENTIFICATION: Jawadih Quarry

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	59
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	36
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

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Hindalco Industries : Kujam – II

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0434/2020-21

Date: 25<sup>th</sup> March, 2021

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: *Nawatoli Quarry*

Sample collected on: *19.02.2021*

### LOCATION / IDENTIFICATION: Nawatoli Quarry

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	61
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	38
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Environmental Monitoring Report

FEBRUARY 2021

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Date: 25<sup>th</sup> March, 2021

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: *Bhattipat*

Sample collected on: *19.02.2021*

### LOCATION / IDENTIFICATION: Bhattipat

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	57
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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

Mobile No: +91 9431.102.102 / +91 9955.358.262,

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

Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2021

<b>Report No. : MEEPL/MAR/0440/2020-21</b>	<b>Date: 25<sup>th</sup> March, 2021</b>
<b>Sample described by customer: AMBIENT AIR QUALITY MONITORING</b>	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: <b>Lohardaga</b>	
Postal Code: <b>835203</b>	
State: <b>Jharkhand</b>	
Country: <b>India</b>	
Sample Type: <b>AMBIENT AIR QUALITY MONITORING</b>	
Marks on Sample: Location: <b>Near Dipa Kujam Village</b>	
Sample collected on: <b>20.02.2021</b>	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	70
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	41
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	7.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	7.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

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: [mahabalaranchi@gmail.com](mailto:mahabalaranchi@gmail.com)

Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0441/2020-21

Date: 25<sup>th</sup> March, 2021

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: *Near Chathasari Village*

Sample collected on: 20.02.2021

### LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	57
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	33
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.3
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.24
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.95
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.2
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.17

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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

Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0442/2020-21	Date: 25 <sup>th</sup> March, 2021
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: <b>Near Shakhuapani Village</b>	
Sample collected on: <b>20.02.2021</b>	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	47
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	28
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.18
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.4
10.	Arsenic (As)	µg/m <sup>3</sup>	06	0.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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

Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2021

Report No. : MEEPL/MAR/0443/2020-21

Date: 25<sup>th</sup> March, 2021

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 Pakri Gada Village*

Sample collected on: 20.02.2021

### LOCATION / IDENTIFICATION: Near Pakri Gada Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	53
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	31
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.19
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	µg/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	µg/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.0
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# INSTITUTE FOR ENVIRONMENTAL MANAGEMENT

## ECO ENVIRO LAB

ISO 9001:2015 (QMS), ISO 45001:2018 (OHSAS); NABL & JSPCB Accreditation  
2208/A, Jagarnath Nagar, Pundag Road, Near Anand Gas Godown, Argora, Ranchi, Jharkhand – 834012.  
Email ID – [iem2012@Rediffmail.com](mailto:iem2012@Rediffmail.com), Mob. No. – 8407804253.

### Ambient Air Quality Test Report

<b>Client Name &amp; Address:</b> Hindalco Industries Limited Kujam II Bauxite Mines Kujam & Chirodih, Dist - Gumla	<b>Sample Details:</b> Type of Industry: Bauxite Mines Sample Description: Ambient Air Sampling Date: 15/04/2021-16/04/2021 Sample Registration Date: 17/04/2021
<b>Test Report No:</b> IEM/EEL/RAN/AAQ/0401A <b>Application No:</b> 10215227, <b>Date:</b> 11.03.2021, <b>Time:</b> 03:30 <b>Report Issue Date:</b> 24/04/2021 <b>Protocol:</b> IS Method & CPCB Guideline	<b>Customer Rept.:</b> Mr. Bijesh Kumar Jha <b>Sample Drawn By:</b> Nilesh & Team

#### METEROLOGICAL INFORMATION

Average Temp(°C)	Average Relative Humidity (%)	Average Barometric Pressure (mm of Hg)	Weather Condition	Wind Direction
34	38	706.8	Sunny	W


#### Concentration in Ambient Air (Industrial, Residential, Rural and Other Area)


##### Time Weighted Average- 24 Hours

Parameters		SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	PM <sub>10</sub> (µg/m <sup>3</sup> )
Method Name		Improved West & Gaeke method	Jackob & Hochheiser Modified Method	Gravimetric Method
NAAQMS/36/2012-13		IS 5182 (Part-02)	IS 5182 (Part-06)	IS 5182 (Part-23)
Location	Sampling Point Co- ordinate	Concentration in Ambient Air as per NAAQS- 2009 For 24 Hours		
		80	80	100
Kujam II Weigh Bridge	23°18'50.59"N 84°17'30.39"E	5.29	7.82	83.75
Jawadih Quarry	23°18'56.89"N 84°17'30.27"E	4.13	5.98	76.18
Nawatoli Quarry	23°18'20.87"N 84°17'38.67"E	4.28	6.07	80.10
Bhattipat	23°18'34.89"N 84°17'54.25"E	4.00	6.13	72.64

---End of Report---

  
Tested by  
Analyst

  
Checked By  
(Sunil Kumar Singh)  
(Lab In charge cum Technical Manager)

  
Authorized Signatory  
(Dr. S. G. Jain)  
(Director & QC Manager)

Note: -1. The results refer only to the tested sample of applicable parameters. 2. The sample will be preserved for a maximum of 7 days on request from the date of issue of the certificate. 3. The certificate shall not be reproduced in part or full and can't be used as evidence or in court of law without prior permission in writing. 4. All disputes are subjected to the Ranchi jurisdiction.

## Annexure 1

### Piezometer reading - Kujam-II Bauxite Mines

S No	Month	Depth (meter)
1	October'20	32.20
2	November'20	36.48
3	December'20	37.96
4	January'21	35.89
5	February'21	35.69
6	March'21	35.55

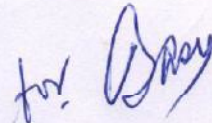
## Annexure-2

### BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2020-21

The composite cost during the year 2020-21 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 (35.12 ha), 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).

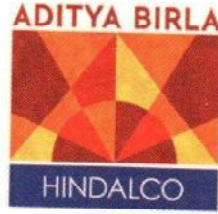
S No	Description	Budget (in Rupees) FY 2020-21	Actual (in Rupees) FY 2020-21 (From October'20 to March'21)
1	Pollution Control & Environment monitoring	38,21,524.00	26,99,875.07
2	Reclamation/ Back filling & Rehabilitation**	3,21,50,000.00	2,90,93,388.00
3	Green belt, Plantation & Water spraying arrangement	49,25,800.00	46,95,346.80
4	Rural Development	3,20,21,451.00	1,65,48,825.39

\*\*Part of OB removed cost.

*for* 

(Basudev Gangopadhyay)  
Head (Geology & Environment)





Annexure 3

Date – 06.07.2020

**Office Order**

Environmental Cell has been re-constituted at Kujam II Bauxite Mine (Area 157.38 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. Pravin Bhalekar (Coordinator)
2. Mr. Mahendra Bhagat – (Member)
3. Mr. Rajesh Kundu – Geologist
4. Mr. Abhay Kumar – Environment Engineer

The Undersigned is the in charge of above Environment Management Cell constituted for the purpose of ensuring compliances of environmental act rule and regulation for the above mine.

A handwritten signature in blue ink, appearing to read "Basudev Gangopadhyay", is written over a horizontal line.

**Basudev Gangopadhyay**  
Senior Executive (Quality & Environment)


## Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from October'20 to March'21									
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	NIL	NIL	NIL	NIL	
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	25490	0.178	0.15	0.00	
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	57149	0.512	0.00	0.00	
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	37780	1.52	4.28	50116.10	
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	90915	3.19	6.18	157480.42	
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	79180	3.27	8.420	285021.770	
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	138808	6.52	6.23	208233.55	
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	81960	1.9	1.2	225276.75	
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	23128	0.46	0.44	22658.4	

## Annexure 4

11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL	NIL
15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	111000	0.80	0.70	272905.96	
<b>Minerals &amp; Minerals Limited</b>									
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	3200	0.20	0.10	31346.54	
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	108500	0.46	0.75	234214.42	
18	Bimarla Bauxite Mine	134.37	300000	18.07.2009 to 17.07.2059	62100	2.95	2.50	160141.10	

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

  
**Basudev Gangopadhyay**  
 Head (Geology & Environment)