

HIL/LHD/ENV/MoEF/874

Date: 26.11.2020

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 Shrengdag (155.81 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period April'20 to September'20.

**Ref:** Environmental Clearance letter no J-11015/125/2006-IA II(M) dated 13<sup>th</sup> April 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Shrengdag (155.81 ha)** Bauxite Mining project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period April'20 to September'20. The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
155.81	260000	16.10.1974 to 31.03.2030

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

(Basudev Gangopadhyay)  
GM (Geology & Environment)

Enclosure: - As Above

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Name of the Project : Sherengdag Bauxite Mine (155.81 ha)  
M/s Hindalco Industries Limited

Environment Clearance No. & date : J-11015/125/2006-IA.II(M), dated 13.04.2007

Period of compliance Report : From 1<sup>st</sup> April 2020 to 30<sup>th</sup> September 2020

S No	Conditions	Compliance Status
<b>Specific Conditions</b>		
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Implementations of the stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time. The existing consent to operate is valid up to 31.12.2020. We have applied on line renewal of CTO for further validity in JSPCB portal.  Productions of bauxite are within limits specified in consent to operate.
2	The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.	The land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Land Owner) for 20 years with permission of State Govt. with provision of returning the land as per the norms set by D.C. The compensation and facilities are being provided as per norms set in agreement. Thus, land acquisition has the approval of State Government.
3	The exploration shall be completed within 2.5 years and thereafter the proponent shall come up with a firm proposal for mining, based on the estimated reserves. The reclamation plan, post mine land use and progressive greenbelt development plan shall also be prepared and submitted with the revised proposal.	Required exploration is already done. Mining plan/ Mining Scheme based on current reserves/resource estimate is duly approved by IBM. The reclamation plan, post mine land use and progressive greenbelt development plan have been covered in Mining Plan/Mining scheme which is approved by IBM. The current mining scheme is valid till 31.03.2025.
4	Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Mining is being done at shallow depth. Thus, there is no chance to intersect ground water table during mining operation. Working zone restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same



		status will be maintained in future also.
5	The Project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.	It is being ensured. No natural watercourse has been obstructed and the same will be ensured going forward.
6	Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Top soil is being temporarily stacked properly with proper slope as and when required for its use for reclamation and rehabilitation. Sequential backfilling and reclamation of the mined out area are being exercised during mining operation.
7	The waste generated shall be concurrently backfilled in the mined out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six month basis.	Overburden and waste rock from the mining pit are being used for back filling. Backfilling and plantation detail provided in Annexure - 4  No external OB dump is in the project area.  Monitoring and management of rehabilitated areas is continuous through supervision.
8	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.  Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.	No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary.  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.  Sump of adequate capacity is being provided and maintained as required.
9	Plantation shall be raised in an area of 70.68 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.	Progressive plantation is being carried out in and around the ML area.  Total 2500 nos sapling planted during the FY 2020-21. Total 20.47 ha areas has been planted till date. In addition to this agricultural activity is going on reclaimed land.
10	The project authority should implement suitable conservation measures to augment ground water	A Plan has been prepared for conservation to augment ground water measures and suitable



	resources in the area in consultation with the Regional Director, Central Ground Water Board.	conservation measures as directed in plan and also as directed in CGWB NOC Viz. Constructing Rain water harvesting pond ,catch drain, garland drain etc is being undertaken.  The drainage system and backfilling is being done in such manner that water gets recharged with in mine lease area itself and do not flow outside mine lease area.
11	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.	Mining is being done at shallow depth. Thus, there is no chance to intersect ground water table during mining operation. We are not using ground water for any mining purpose.  Piezometer has been installed for monitoring of ground water level. Water quality and level report are attached herewith as Annexure 1.
12	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation. No water from natural sources is being used for mining purposes. There is no chance to intersect ground water table during mining operation as total mining depth is around 20m (maximum).
13	Water monitoring both for quality and quantity shall be carried out at four locations namely one spring and three streams. Six monthly report should be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubneshwar.	Spring and stream are being monitored; Report is attached as Annexure 1.
14	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	To keep vehicular emissions in control, company vehicles are periodically checked and repaired as and when required. All the transporters have been instructed to obtain PUC for their vehicles from the competent authority and submit to the concerned officer for verification.  Vehicles are covered with tarpaulin and are being properly loaded while transportation.
15	Drills should either be operated with dust extractors or should be equipped with water injection system.	Wet drilling is in practice.



16	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.	Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. All efforts are being done to mitigate impact of blasting.
17	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	There is no proposal for production enhancement as of now.
18	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	The sewage water from domestic uses is being collected through individual Septic Tank and Soak Pits. Effluent treatment mechanism (Oil-grease trap) are installed at mine site.
19	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, <i>Presbytis phayrei</i> , <i>Melurus ursinus</i> etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.	No endangered species of Flora and Fauna have been reported in the project area.  Suitable conservation measures to protect endangered flora & fauna implemented as under 1. Permanent pillars are established within the mine lease area. 2. Maintenance of the forest road being done. 3. Ensured necessary air and noise pollution control measures. 4. Regular water sprinkling is being carried out on the forest road. 5. Transportation done only in day time. 6. Patrolling is being done.
20	A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.	Final Mine Closure Plan of surrendered (part) area duly approved by Indian Bureau of Mines. Final mine closure plan along with details of corpus fund for entire life of the mine will be submitted to MoEF in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on the present resource estimate, and peak rated production capacity mentioned in EC, the tentative balance life is around 5 years. Balance life of the mine may change based on final resource estimate, EC capacity and cut-off grade at that point of time.



## GENERAL CONDITIONS

S No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forest	Noted.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme. Report is attached herewith as Annexure 4.
3	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	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.
4	Data on ambient air quality (RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> ) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.	Monitoring Reports is enclosed as Annexure 1.
5	Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Two nos. of water tanker have been provided for sprinkling of water on haul roads and are generally being engaged at the places where active mining is in progress to contain fugitive dust. Water spraying at loading, unloading, and transfer points is being done.
6	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.	Noise monitoring is being done regularly at various locations of the work zone area. Workers engaged in operation of HEMMs, etc have been provided with PPEs such as earplug and earmuffs.
7	Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> 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 generated from workshop within mine lease area. We are not discharging any wastewater outside mine lease area. Oil and grease pit is installed at mine site.



8	<p>Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects.</p> <p>Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.</p>	<p>Use of Personal Protective Equipment (PPE) by the individuals is being ensured. All the mine workers are being regularly and periodically sent to our own hospital for health checkup for any contraction of diseases due to exposure in dusty and noisy areas.</p> <p>Training on safety, health and environmental aspects of mining is being regularly imparted through VT centre and through various other training programmes conducted by the State Government, recognized agencies, etc.</p>
9	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as Annexure -3
10	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Not applicable, as this is an operating mine.
11	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Statement of budgetary provision and actual expenses for the year 2020-21 for environmental protection measure is enclosed. Separate funds earmarked for environmental protection measures annexed as Annexure -2 Now Regional office is at Ranchi
12	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Agreed. Now Regional office is at Ranchi
13	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Officer, Bhubaneshwar, Central Pollution Control Board and State Pollution Control Board.	Duly submitted.
14	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.	Complied.
15	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office /	Displayed.



	Tehsildar's Office for 30 days.	
16	The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office.

  
Signature





# 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

## SERENDAG A BAUXITE MINE- ENVIRONMENTAL MONITORING REPORT

APRIL 2020

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE







# Mahabal Enviro Engineers Pvt. Ltd.

**Branch Office:**

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

## CONTENT

	LOCATION - SERENDAG A BAUXITE MINE
	<b>AMBIENT AIR QUALITY - CORE ZONE</b>
1	Near Weigh Bridge
2	Mine Pit Quarry No. 2B
3	Mine Pit Quarry No. 2A
4	BKB Quarry
	<b>AMBIENT AIR QUALITY - BUFFER ZONE</b>
1	Near Banjari Village
2	Near Harup Village
3	Near Pauri Village
4	Near Paintoli Village
	<b>AMBIENT NOISE</b>
	<b>SPOT NOISE</b>
	<b>WORKSHOP EFFLUENT</b>
	<b>SPRING WATER QUALITY</b>
	<b>DG STACK EMISSION</b>
	<b>DRINKING WATER ANALYSIS</b>
	<b>STREAM WATER - UP STREAM &amp; DOWN STREAM</b>
1	Lapsore Nala







# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0379/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: <i>Near Weigh Bridge</i>	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: <i>Near Weigh Bridge</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	80.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	36.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.8
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	10.4
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.21
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.0
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0380/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: <i>Mine Pit Quarry No. 2B</i>	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2B</i>				
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	86.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	42.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	5.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.9
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)	ng/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	3.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0381/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: <i>Mines Pit Quarry No. 2A</i>	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2A</i>				
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	73.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	33.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	7.6
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	9.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.22
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	3.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.16

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE







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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0382/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: <i>BKB Quarry</i>	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: <i>BKB Quarry</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	88.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	42.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	6.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.21
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.06
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	3.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	3.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE







# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0383/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: Near Banjari Village	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: Near Banjari 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	70.1
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	3.6
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.27
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	3.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.2

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0384/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: Near Harup Village	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: Near Harup Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	53.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	22.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.21
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	3.1
10.	Arsenic (As)	ng/m <sup>3</sup>	06	3.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0385/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: Near Pauri Village	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: Near Pauri 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	68.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.7
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.21
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.0
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.8
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0386/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 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: Near Paintoli Village	
<b>Sample collected on:</b> 11.04.2020	

LOCATION / IDENTIFICATION: Near Paintoli 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	63
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	29
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.4
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.18
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	3.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.8
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	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0387/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 2020
<b>Sample described by customer:</b> Measurement of Noise	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>11.04.2020</b>	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Sherengdag A Mines Pit	dB (A) Leq	75	68.3	70	54.9

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0388/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 2020
<b>Sample described by customer : Measurement of Spot Noise</b>	
Client Name: <b>Hindalco Industries Limited</b>	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: <b>Measurement of Spot Noise</b>	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: <b>11.04.2020</b>	

Location/Identification	Unit	Limit (day)	Result
Sherengdag – A Bauxite Near Poclairn	dB (A) $L_{eq}$	75	71.3

For Mahabal Enviro Engineers Pvt. Ltd.

**Vijay Pandey**  
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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0389/2020-21			<b>Date:</b> 11 <sup>th</sup> May, 2020		
Sample described by customer: <b>Effluent Water</b>					
Client Name: <b>Hindalco Industries Limited</b>					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: <b>Effluent Water</b>					
Marks on Sample: Location: <b>Sherengdag – A Mines</b>					
<b>Quantity:</b> 4 liters.					
<b>Sample collected on:</b> 11.04.2020					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B,4-92	<b>8.1</b>	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 <sup>nd</sup> EDN: 2012-2540	<b>73</b>	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	<b>9.4</b>	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	<b>44</b>	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<b>&lt;5.0</b>	mg/l	10
6.	Total Dissolved Solids	APHA 22 <sup>ND</sup> EDN 2012-2540	<b>1510</b>	mg/l	2100
7.	Aluminium (as Al)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>1.4</b>	mg/l	3
8.	Calcium (as Ca)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>9.8</b>	mg/l	75
9.	Iron (as Fe)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>1.21</b>	mg/l	3
10.	Temperature		<b>28.7</b>	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0390/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 2020
<b>Sample described by customer :</b> SPRING 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> SPRING WATER	
<b>Marks on Sample:</b> Location: Serengdag – A Bauxite Mines	
<b>Quantity:</b> 5 L X 2 No. PVC Can	
<b>Sample collected on:</b> 11.04.2020	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	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	0.31	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	388	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO <sub>3</sub> )	mg/l	39	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	41	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	33	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
11	Sulphate (as SO <sub>4</sub> )	mg/l	28.5	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.21	0.5 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.6	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84







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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

## Continuation Sheet MEEPL/MAY/0390/2020-21

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.13	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.9	75 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.07	0.3 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	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	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	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 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 <sup>nd</sup> Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 <sup>nd</sup> Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	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	0.1 max	APHA 22 <sup>nd</sup> Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	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

SENIOR EXECUTIVE





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0391/2020-21			<b>Date:</b> 11 <sup>th</sup> May, 2020	
Sample described as: <b>FLUE GAS</b>				
Name of the Industry: <b>M/S HINDALCO INDUSTRIES LIMITED</b>				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835302				
<b>Date &amp; time of Sampling:</b> 11.04.2020				
<b>Sampling Site:</b> Sherengdag Bauxite Mines Office				
A. General Information about Stack <ul style="list-style-type: none"> <li>Stack connected to: DG-Set (40 KVA)</li> <li>Emission due to Burning of H.S.D</li> <li>Material OF construction: M.S</li> <li>Shape of Stack: Circular</li> <li>Capacity. 40 KVA</li> </ul>				
B. Physical characteristics of stack <ul style="list-style-type: none"> <li>Height of the stack (a) from ground level: 2.0 m</li> <li>Diameter of the Stack at Sampling point: 0.10 m</li> <li>Height of the sampling point from GL. 1.75 m</li> </ul>				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none"> <li>Fuel used: H.S.D</li> <li>Fuel Consumption: 6 lt/hr</li> </ul>				
D. Analysis Report				
Sl. No.	PARAMETERS	PROTOCOL	RESULTS	Limits as per MoEF G.S.R.448(E)
1.	Temperature of Emission (°C)	IS 11255 Part: 3 1985 (Realf 2008)	294	---
2.	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	742	---
3.	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	12.9	---
4.	Quantity of Gas flow (Nm <sup>3</sup> /hr)	IS 11255 Part: 3 1985 (Realf 2008)	210	---
5.	Concentration of CO <sub>2</sub> (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	3.1	5.0
6.	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.72	--
7.	Concentration of SO <sub>2</sub> (mg/Nm <sup>3</sup> )	USEPA-6C	72.1	--
8.	Concentration of NO <sub>2</sub> (gm/kw-h)	USEPA-7E	1.27	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.24S	0.3
E. Pollution Control Device Details of pollution control devices attached with the stack: Nil				
F. Remarks: Nil				

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0392/2020-21	<b>Date:</b> 11 <sup>th</sup> May, 2020
<b>Sample described by customer :</b> DRINKING WATER-POTABILITY	
<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>Marks on Sample: Location:</b> SHERENDAG A – DRINKING WATER	
<b>Sample collected on:</b> 11.04.2020	

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	--	7.1	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	127	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	29.9	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	31.5	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	6.1	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO <sub>4</sub> )	mg/l	4.3	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

## Continuation Sheet

MEEPL/MAY/0392/2020-21

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO <sub>3</sub> )	mg/l	1.5	45 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-NO <sub>3</sub> -E, 4-125
15	Fluoride (as F)	mg/l	0.14	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	30	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	0.15	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-CNC & 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 : Serengdag A

Environmental Monitoring Report

April 2020

Continuation Sheet  
MEEPL/MAY/0392/2020-21

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
Remarks: N.D- Not Detected					

**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 : Serengdag A

Environmental Monitoring Report

April 2020

<b>Report No.:</b> MEEPL/MAY/0393/2020-21	<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: Lapsore Nala	
<b>Quantity:</b> 5 L X 2 No. PVC Can	
<b>Sample collected on:</b> 11.04.2020	

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	0.34	1 Max	APHA 22 <sup>nd</sup> Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.9	6.5-8.5	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	<0.5	0.2 min	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	388	397	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO <sub>3</sub> )	mg/l	39	41	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	41	41	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	33	35	250 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-Cl-b, 4-72
11	Sulphate (as SO <sub>4</sub> )	mg/l	28.5	28.5	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	6.6	6.6	30 max	APHA 22 <sup>nd</sup> Ed. 2012, 3500-Mg-B, 3-84





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

April 2020

## Continuation Sheet MEEPL/MAY/0393/2020-21

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	0.15	1 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.9	8.9	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-CNC & 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-og.

**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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**Mahabal Enviro Engineers Pvt. Ltd.**  
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## **SERENGDAG – A BAUXITE MINE- ENVIRONMENTAL MONITORING REPORT**

**MAY 2020**

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

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





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

## CONTENT

LOCATION – SERENDAG – A BAUXITE MINE	
<b>AMBIENT AIR QUALITY – CORE ZONE</b>	
1	Near Weigh Bridge
2	Mine Pit Quarry No. 2B
3	Mine Pit Quarry No. 2A
4	BKB Quarry
<b>AMBIENT AIR QUALITY – BUFFER ZONE</b>	
1	Near Banjari Village
2	Near Pauri Village
3	Near Paintoli Village
4	Near Harup Village





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

<b>Report no:</b> MEEPL/JUNE/0342/2020-21	<b>Date:</b> 17 <sup>th</sup> June, 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: <i>Near Weigh Bridge</i>	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: <i>Near Weigh Bridge</i>				
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	83.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	41.4
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	4.3
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	9.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.39
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.8
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Environmental Monitoring Report

MAY 2020

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<b>Sample described by customer:</b> AMBIENT AIR QUALITY MONITORING	
<b>Client Name:</b> Hindalco Industries Limited	
<b>Client Address:</b> Lohardaga	
<b>Postal Code:</b> 835203	
<b>State:</b> Jharkhand	
<b>Country:</b> India	
<b>Sample type:</b> AMBIENT AIR QUALITY MONITORING	
<b>Marks on Sample:</b> Location: <i>Mine Pit Quarry No. 2B</i>	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2B</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	90.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	44.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.0
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.6
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	10.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

<b>Report no:</b> MEEPL/JUNE/0344/2020-21	<b>Date:</b> 17 <sup>th</sup> June, 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: <i>Mines Pit Quarry No. 2A</i>	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2A</i>				
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	76.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.3
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	5.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.31
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.2

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

<b>Report no:</b> MEEPL/JUNE/0345/2020-21	<b>Date:</b> 17 <sup>th</sup> June, 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: <i>BKB Quarry</i>	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: <i>BKB Quarry</i>				
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	91.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	43.4
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	5.2
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	9.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.30
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.06
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.5

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE







# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

<b>Report no:</b> MEEPL/JUNE/0346/2020-21	<b>Date:</b> 17 <sup>th</sup> June, 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: Near Banjari Village	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: Near Banjari Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	64.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.23
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.7
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	3.1
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.5

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

<b>Report no:</b> MEEPL/JUNE/0347/2020-21	<b>Date:</b> 17 <sup>th</sup> June, 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: Near Pauri Village	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: Near Pauri 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	61.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	26.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.2
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.2
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)	ng/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.8
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	0.21

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

<b>Report no:</b> MEEPL/JUNE/0348/2020-21	<b>Date:</b> 17 <sup>th</sup> June, 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: Near Paintoli Village	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: Near Paintoli 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	24.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.28
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

MAY 2020

<b>Report no:</b> MEEPL/JUNE/0349/2020-21	<b>Date:</b> 17 <sup>th</sup> June, 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: Near Harup Village	
<b>Sample collected on:</b> 11.05.2020	

LOCATION / IDENTIFICATION: Near Harup 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	57.1
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	2.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.25
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.5
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.5

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Eco Ventures Pvt. Ltd.

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

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

**Mahabal Enviro Engineers Pvt. Ltd.**  
At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,  
District – Ranchi 834009

## SERENDAG A BAUXITE MINE- ENVIRONMENTAL MONITORING REPORT

JUNE 2020

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

## CONTENT

LOCATION - SERENDAG A BAUXITE MINE	
<b>AMBIENT AIR QUALITY - CORE ZONE</b>	
1	Near Weigh Bridge
2	Mine Pit Quarry No. 2B
3	Mine Pit Quarry No. 2A
4	BKB Quarry
<b>AMBIENT AIR QUALITY - BUFFER ZONE</b>	
1	Near Banjari Village
2	Near Pauri Village
3	Near Paintoli Village
4	Near Harup Village





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0362/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: <i>Near Weigh Bridge</i>	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: <i>Near Weigh Bridge</i>				
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	79.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	35.3
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	3.6
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	9.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.01
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0363/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: <i>Mine Pit Quarry No. 2B</i>	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2B</i>				
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	86.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	44.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.6
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	10.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.39
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0364/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: <i>Mines Pit Quarry No. 2A</i>	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2A</i>				
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	72.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	37.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	34.0
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	3.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.0
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.07
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.4
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.6
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.2

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0365/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: <i>BKB Quarry</i>	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: <i>BKB Quarry</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	90.0
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	42.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.5
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	0.39

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0366/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: Near Banjari Village	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: Near Banjari 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	67.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	33.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.2
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	8.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.22
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.06
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.3
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE







# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0367/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: Near Pauri Village	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: Near Pauri 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	59.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.0
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0368/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: Near Paintoli Village	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: Near Paintoli Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	64.1
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	2.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.0
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.0
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.9
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)	ng/m <sup>3</sup>	20	1.4
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
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	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JUNE 2020

<b>Report no:</b> MEEPL/JULY/0369/2020-21	<b>Date:</b> 20 <sup>th</sup> July, 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: Near Harup Village	
<b>Sample collected on:</b> 10.06.2020	

LOCATION / IDENTIFICATION: Near Harup 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	28.0
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	3.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Eco Ventures Pvt. Ltd.

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,  
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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

## **SHERENGDA G A BAUXITE MINE- ENVIRONMENTAL MONITORING REPORT**

JULY 2020

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE







# Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

## CONTENT

LOCATION – SERENDGAG – A BAUXITE MINE	
<b>AMBIENT AIR QUALITY – CORE ZONE</b>	
1	Near Weigh Bridge
2	Mine Pit Quarry No. 2B
3	Mine Pit Quarry No. 2A
4	BKB Quarry
<b>AMBIENT AIR QUALITY – BUFFER ZONE</b>	
1	Near Banjari Village
2	Near Harup Village
3	Near Pauri Village
4	Near Paintoli Village
<b>WORKSHOP EFFLUENT WATER</b>	
<b>RUNOFF WATER ANALYSIS</b>	
<b>DRINKING WATER ANALYSIS</b>	





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0329/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: <i>Near Weigh Bridge</i>	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: <i>Near Weigh Bridge</i>				
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	63.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	31.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	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	7.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.32
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.32

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0330/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: <i>Mine Pit Quarry No. 2B</i>	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2B</i>				
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	36.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	6.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.7
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.31
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	ng/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	0.21

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0331/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: <i>Mines Pit Quarry No. 2A</i>	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2A</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	60.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.8
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.32
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
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	0.25

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0332/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: <i>BKB Quarry</i>	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: <i>BKB Quarry</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	65.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	32.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	5.6
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.37
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.9
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
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	0.34

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0333/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: Near Banjari Village	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: Near Banjari 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	48.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	21.2
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	4.9
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	3.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.4
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0334/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: Near Pauri Village	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: Near Pauri 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	53.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	25.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.29
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.02
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.4
10.	Arsenic (As)	ng/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	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,  
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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0335/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: Near Paintoli Village	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: Near Paintoli 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	42.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	20.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.26
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.1
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.4
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0336/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 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: Location:</b> Near Harup Village	
<b>Sample collected on:</b> 11.07.2020	

LOCATION / IDENTIFICATION: Near Harup Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	50.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	24.1
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.5
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.9
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	5.1
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.26
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.9
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	2.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.23

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. : MEEPL/AUG/0337/2020-21</b>				<b>Date: 10<sup>th</sup> August, 2020</b>	
Sample described by customer: <b>Workshop Effluent Water</b>					
Client Name: <b>Hindalco Industries Limited</b>					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: <b>Effluent Water</b>					
Marks on Sample: Location: <b>Sherengdag – A Mines</b>					
<b>Quantity:</b> 4 liters.					
<b>Sample collected on:</b> 11.07.2020					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B,4-92	<b>8.2</b>	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 <sup>nd</sup> EDN: 2012-2540	<b>77</b>	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	<b>9.1</b>	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	<b>37</b>	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<b>&lt;5.0</b>	mg/l	10
6.	Total Dissolved Solids	APHA 22 <sup>ND</sup> EDN 2012-2540	<b>1761</b>	mg/l	2100
7.	Aluminium (as Al)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>1.3</b>	mg/l	3
8.	Calcium (as Ca)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>9.5</b>	mg/l	75
9.	Iron (as Fe)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>1.20</b>	mg/l	3
10.	Temperature		<b>17.6</b>	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. : MEEPL/AUG/0338/2020-21</b>				<b>Date: 10<sup>th</sup> August, 2020</b>	
Sample described by customer: <b>Runoff Water</b>					
Client Name: <b>Hindalco Industries Limited</b>					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: <b>Runoff Water – Surface Water</b>					
Marks on Sample: Location: <b>Runoff Water - Sherengdag A Bauxite Mines</b>					
<b>Quantity:</b> 4 liters.					
<b>Sample collected on:</b> 11.07.2020					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 <sup>nd</sup> Ed. 2012, 4500-H+-B,4-92	<b>8.0</b>	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 <sup>nd</sup> EDN: 2012-2540	<b>71</b>	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	<b>4.7</b>	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	<b>26</b>	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<b>&lt;5.0</b>	mg/l	10
6.	Total Dissolved Solids	APHA 22 <sup>ND</sup> EDN 2012-2540	<b>1643</b>	mg/l	2100
7.	Aluminium (as Al)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>1.3</b>	mg/l	3
8.	Calcium (as Ca)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>8.2</b>	mg/l	75
9.	Iron (as Fe)	APHA 22 <sup>nd</sup> EDN 2012-3120B	<b>1.3</b>	mg/l	3
10.	Temperature		<b>17.1</b>	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

<b>Report No. :</b> MEEPL/AUG/0339/2020-21	<b>Date:</b> 10 <sup>th</sup> August, 2020
<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>Marks on Sample: Location:</b> SHERENDAG A – DRINKING WATER	
<b>Sample collected on:</b> 11.07.2020	

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	--	6.9	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	118	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	28.1	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO <sub>3</sub> )	mg/l	24.5	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	4.3	200 max	APHA 22 <sup>nd</sup> Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

JULY 2020

## Continuation Sheet MEEPL/AUG/0339/2020-21

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	0.14	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	28	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	0.15	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-CNC & 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 : Serengdag A

Environmental Monitoring Report

JULY 2020

Continuation Sheet  
MEEPL/AUG/0339/2020-21

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
Remarks: N.D- Not Detected					

**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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At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,  
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## **SHERENGDA G A BAUXITE MINE- ENVIRONMENTAL MONITORING REPORT**

**AUGUST 2020**

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

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





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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

## CONTENT

LOCATION – SHRENGDAG A BAUXITE MINE	
<b>AMBIENT AIR QUALITY – CORE ZONE</b>	
1	Near Weigh Bridge
2	Mine Pit Quarry No. 2B
3	Mine Pit Quarry No. 2A
4	BKB Quarry
<b>AMBIENT AIR QUALITY – BUFFER ZONE</b>	
1	Near Banjari Village
2	Near Pauri Village
3	Near Paintoli Village
4	Near Harup Village





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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0352/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: <i>Near Weigh Bridge</i>	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: <i>Near Weigh Bridge</i>				
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	24.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	16.5
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.3
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.6
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.10
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.06
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	ng/m <sup>3</sup>	06	0.94
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	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0353/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: <i>Mine Pit Quarry No. 2B</i>	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2B</i>				
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	20.4
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	12.9
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.6
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.12
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	0.62
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.86
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.11

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE







# Mahabal Enviro Engineers Pvt. Ltd.

## Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,  
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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0354/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: <i>Mines Pit Quarry No. 2A</i>	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2A</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	18.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	10.8
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.6
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.2
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.07
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.8
10.	Arsenic (As)	ng/m <sup>3</sup>	06	0.94
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	0.06

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0355/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: <i>BKB Quarry</i>	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: <i>BKB Quarry</i>				
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	21.3
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	13.2
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	2.2
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	0.98
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.8
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.08
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.4
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	1.9
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.4

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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0356/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: Near Banjari Village	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: Near Banjari Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	13.4
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	7.8
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	0.92
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.9
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.05
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	0.53
10.	Arsenic (As)	ng/m <sup>3</sup>	06	0.80
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.70
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.13

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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0357/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: Near Pauri Village	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: Near Pauri Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	16.8
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	8.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.8
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	0.98
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.4
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.06
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.87
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0358/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: Near Paintoli Village	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: Near Paintoli Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	13.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	6.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.9
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.6
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	1.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.7
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.08
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.3
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.72
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Shrengdag A

Environmental Monitoring Report

AUGUST 2020

<b>Report no:</b> MEEPL/SEP/0359/2020-21	<b>Date:</b> 15 <sup>th</sup> September, 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: Near Harup Village	
<b>Sample collected on:</b> 12.08.2020	

LOCATION / IDENTIFICATION: Near Harup Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	13.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	7.3
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	1.6
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	2.5
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	6.3
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.04
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.07
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	0.95
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.65
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.11

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

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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

## **SHERENGDA G A BAUXITE MINE- ENVIRONMENTAL MONITORING REPORT**

SEPTEMBER 2020

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





# Mahabal Enviro Engineers Pvt. Ltd.

**Branch Office:**

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

## CONTENT

LOCATION - SERENDAG A BAUXITE MINE	
<b>AMBIENT AIR QUALITY - CORE ZONE</b>	
1	Near Weigh Bridge
2	Mine Pit Quarry No. 2B
3	Mine Pit Quarry No. 2A
4	BKB Quarry
<b>AMBIENT AIR QUALITY - BUFFER ZONE</b>	
1	Near Banjari Village
2	Near Pauri Village
3	Near Paintoli Village
4	Near Harup Village





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0392/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: <i>Near Weigh Bridge</i>	
<b>Sample collected on:</b> 10.09.2020	

LOCATION / IDENTIFICATION: <i>Near Weigh Bridge</i>				
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	42.7
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	24.6
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	3.4
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.4
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	9.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.12
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	2.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.4
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	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
 SENIOR EXECUTIVE





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0393/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: Location:</b> <i>Mine Pit Quarry No. 2B</i>	
<b>Sample collected on:</b> 10.09.2020	

LOCATION / IDENTIFICATION: <i>Mines Pit Quarry No. 2B</i>				
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	30.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	16.4
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	1.8
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	9.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.14
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.7
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.4
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	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0394/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: Location:</b> Mines Pit Quarry No. 2A	
<b>Sample collected on:</b> 10.09.2020	

LOCATION / IDENTIFICATION: Mines Pit Quarry No. 2A				
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	35.6
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	14.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	4.1
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.7
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	0.12
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.6
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.4
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	0.21

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

Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0395/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: Location:</b> <i>BKB Quarry</i>	
<b>Sample collected on:</b> 10.09.2020	

LOCATION / IDENTIFICATION: <i>BKB Quarry</i>				
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	26.4
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	12.2
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.3
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	5.1
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	8.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.14
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.06
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	2.5
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	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0396/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: Location:</b> Near Banjari Village	
<b>Sample collected on:</b> 10.09.2020	

### LOCATION / IDENTIFICATION: Near Banjari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	18.9
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	9.7
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.4
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	7.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.07
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.5
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.2
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey  
SENIOR EXECUTIVE





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Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0397/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: Near Pauri Village	
<b>Sample collected on:</b> 10.09.2020	

LOCATION / IDENTIFICATION: Near Pauri 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	15.2
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	7.3
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.4
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	3.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.2
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.06
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.04
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.6
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.5
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0398/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: Near Paintoli Village	
<b>Sample collected on:</b> 10.09.2020	

LOCATION / IDENTIFICATION: Near Paintoli Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM <sub>10</sub>	µg/m <sup>3</sup>	100	13.1
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	8.6
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.4
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	6.6
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.04
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.03
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.3
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.7
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	05	0.7
12.	Benzo (a) Pyrene	µg/m <sup>3</sup>	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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

Hindalco Industries : Serengdag A

Environmental Monitoring Report

SEPTEMBER 2020

<b>Report No. :</b> MEEPL/OCT/0399/2020-21	<b>Date:</b> 16 <sup>th</sup> October, 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: Near Harup Village	
<b>Sample collected on:</b> 10.09.2020	

LOCATION / IDENTIFICATION: Near Harup 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	20.5
02.	Particulate Matter (size less than 2.5 µm) PM <sub>2.5</sub>	µg/m <sup>3</sup>	60	11.4
03.	Sulphur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	80	2.5
04.	Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	80	1.3
05.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	400	4.4
06.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	180	7.5
07.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	02	0.08
08.	Lead (Pb)	µg/m <sup>3</sup>	1.0	0.05
09.	Nickel (Ni)	ng/m <sup>3</sup>	20	1.2
10.	Arsenic (As)	ng/m <sup>3</sup>	06	1.5
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



## Annexure 1

### Serengdag A - April'20 to September'20

S.No	Date	Height(m)
1	4/29/2020	31.24
2	4/30/2020	31.21
3	5/30/2020	32.3
4	5/31/2020	31.89
5	6/29/2020	32.38
6	6/30/2020	32.42
7	7/29/2020	32.11
8	7/30/2020	32.04
9	8/5/2020	32.03
10	8/25/2020	32.08
11	8/29/2020	32.01
12	9/8/2020	32.12
13	9/26/2020	32.08

## Annexure-2

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

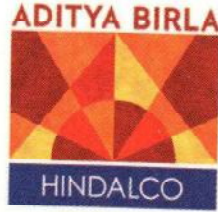
The composite cost during the year 2020-21 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (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 April'20 to September'20)
1	Pollution Control & Environment monitoring	38,21,524.00	23,85,921.05
2	Reclamation/ Back filing & Rehabilitation**	3,21,50,000.00	2,21,40,257.00
3	Green belt, Plantation & Water spraying arrangement	49,25,800.00	27,10,225.84
4	Rural Development	3,20,21,451.00	1,06,39,819.42

\*\*Part of OB removed cost.



(Basudev Gangopadhyay)  
Head (Geology & Environment)



Annexure 3

Date – 06.07.2020

**Office Order**

Environmental Cell has been re-constituted at Sherengdag Bauxite Mine (Area 155.81 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. Ananda Sahu (Coordinator)
2. Mr. Kapil Ojha - Geologist
3. Mr. Ajay Singh (Foreman)- Member
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.

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



## Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'20 to September'20								
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	65.21	280000	11.07.1981 to 31.03.2030	13267	0.073	0.11	10154.95
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	28869	0	0.52	16795.65
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	21915	0.70	1.28	19090.63
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	45243	0.953	1.92	38334.18
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	49710	0.947	1.00	60021.340
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	84400	5.08	3.59	198360.97
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	46854	2.08	1.76	180936.53
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	18420	0.27	0.22	7140.08



## Annexure 4

11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL
15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	66500	0.50	0.66	84577.24
<b>Minerals &amp; Minerals Limited</b>								
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	24600	0.30	0.12	29253.14
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	130500	1.37	0.37	120240.90
18	Bimarla Bauxite Mine	134.37	300000	18.07.2009 to 17.07.2059	46250	2.35	1.00	106168

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



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



HINDALCO MANAGEMENT FRAMEWORK  
*excellence by design*

## ENVIRONMENT POLICY

We, at Hindalco Industries Limited, operating across the process chain from mining to semi-fabricated products in non-ferrous metals, will strive to continually improve our environmental performance for sustainable operations and responsible growth globally, by integrating sound environmental systems & practices and Pollution Prevention approach.

To achieve this, we shall:

- Continue to comply with all applicable legal and other requirements on environment.
- Continually improve environmental performance by strengthening the Environmental Management System conforming to national /international standards, including setting up and reviewing targets and measuring, monitoring and reporting their progress.
- Allocate sufficient resources such as organisational structure, technology and funds for implementation of the policy and for regular monitoring of performance.
- Adopt pollution prevention approach for all our processes; enhance material efficiency and achieve high productivity.
- Conserve key resources like electricity, coal, water, oil, and raw materials, by promoting efficient technologies and manufacturing process improvements, water conservation programmes, and efficient use of raw materials.
- Adopt energy efficient and cleaner technologies based on techno-economic viability, appropriate to the region in which we operate, and in line with our growth and diversification plans.
- Promote the principles of waste prevention, reduction, reuse, recycling and recovery to minimize waste generation and strengthen the practices for management of wastes.
- Work in partnership with regulatory authorities, relevant suppliers, contractors, distributors and logistics partners and all other stakeholders, as applicable, to understand and initiate improvement actions.
- Engage with internal and external stakeholders including key business partners such as joint venture partners, licensees and outsourcing partners and wider communities, to broaden our understanding of environmental priorities and initiate actions on key environmental challenges.
- Adapt environmental performance over life cycle as an important input to the decision-making processes in the organization.
- Raise environmental awareness at all levels of our operations, through training and effective communication, participation and consultation.
- Communicate this Policy within the Organization. Develop and follow appropriate communication system to inform other stakeholders, as applicable, about our environmental commitment and performance.
- Conduct environmental, health and safety due diligence before undergoing any mergers and acquisitions.

This policy shall be made available to all employees, suppliers, customers, community and other stakeholders, as appropriate.

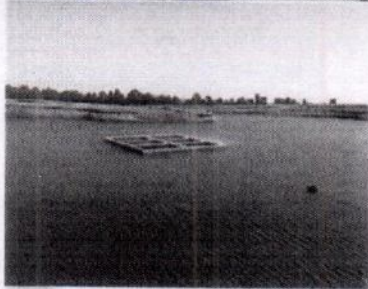
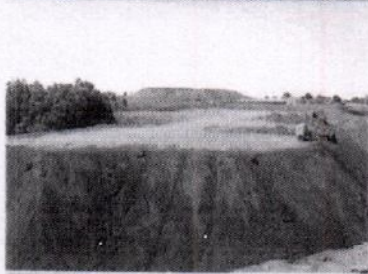


**SATISH PAI**  
**MANAGING DIRECTOR**

Date : 30 June 2020

**HINDALCO INDUSTRIES LIMITED**





## QUALITY, ENVIRONMENT, OCCUPATIONAL HEALTH & SAFETY POLICY

We, at "Hindalco Industries Limited" are committed to demonstrate excellence in Quality, Environment and Occupational Health & Safety for sustainable development

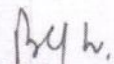
To achieve this, we shall:

- Ensure customer satisfaction by providing value added products and services;
- Continually establish systems, procedures and best practices with technological interventions;
- Optimize resource consumption particularly- raw materials, energy, water oil and promote pollution prevention;
- Commit to continual improvement by strengthening the Integrated Management System;
- Nurture and sustain safe and healthy work environment;
- Commit to protection of environment including prevention of pollution by reclamation and rehabilitation of mined out areas by utilization of solid waste and developing green belt in the area.
- Comply with applicable legislation in letter and spirit;
- Strengthen competence of employees and business associates through continuous training;
- Commit to the control of Quality & Environment risks through a hierarchy of control.

We shall communicate and make this policy available to all stakeholders

Lohardaga

Date: 24-03-2018

  
B.K.Jha

President, Jharkhand Mines

HINDALCO INDUSTRIES LIMITED  
MINES DIVISION