

Ref No: HIL/LHD/GM (GEO)/MoEF/286

Date: 25.11.2018

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 Amtipani Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April'18 to Sept'18.

Ref: Environmental Clearance letter no J-11015/241/2005-IA II (M) dated 14th August 2006

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Amtipani** Bauxite Mining project of M/s Hindalco located in Gumla, Jharkhand for the period **April'18 to Sept'18**.

Hope you will find the same in order.

Thanking You

Yours Sincerely FOR HINDALCO INDUSTRIES LIMITED

(Basudev Gangopadhyay) GM (Geology)

Enclosure: - As Above

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

Compliance of conditions laid down in Environmental Clearance <u>AMTIPANI BAUXITE MINES (190.95 Ha)</u> Period: April'18- Sep'18

MoEF Environment Clearance ref: No J - 11015/241/2005-IA.II (M) dated 14 Aug'06

Sl. No	Conditions Compliance Status				
	Specific Conditions				
1	All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.	Implementations of stipulated conditions in NOC are full filled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid upto 31.12.2020. Production of bauxite are within limits specified in consent to operate.			
2	The mining operations shall not intersect groundwater table. Prior approval of the MoEF and CGWA shall be obtained for mining below water table.	The mining operation confined within shallow depth (20 m max) and not intersected ground water. The EC also mentions ground water is at depth of 80-100 mts, thus there is no chance to intersect ground water table during mining operation. In future also, working zone will be restricted to above ground water table.			
3	The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.	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 as per the norms set by D.C. The compensation and facilities are being provided as per norms set in agreement. Thus the provision is taken care off.			
4	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 stacked separately with proper slope & is being used for reclamation and rehabilitation simultaneously with mining operation.			
5	The waste generated in the initial period shall be dumped temporarily and backfilled in the mined out area. There shall be no permanent external OB dump in the project area. Concurrent backfilling should start from the fifth year onwards. Monitoring and management of rehabilitated areas should continue	During mining concurrent backfilling of waste in worked out quarry is in practice. We are reviewing progress on continuous basis. Monitoring and management of rehabilitation is continuous through supervision.			

	until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.	
6	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains, roads, green belt development etc. The drains should	This is in progress with progress of mining activity. Catch drains, siltation ponds, garland drains, settling ponds and toe walls are constructed as per suitability.
	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	To obviate surface run off going out of our lease hold, we have arrangement of water harvesting pond, during mansoon water is challnelised into water harvesting pond where are silt are getting arrested.
	site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.	Sump of adequate capacity is being provided and maintained as required.
7	Plantation shall be raised in an area of 79.3 ha including a green belt of adequate width by planting the native species around the ML area, roads, etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.	Progressive plantation is under progress. During above period total 2000 nos plantation have been carried out. Green belt development programme is in progress with progress of mining activities.
8	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	We have already implemented suitable conservation measures to augment ground water resources in area.
		Rain water harvesting pond is provided. Conservation Measures viz. check dams, contour bunds, gullies in mining lease area is so designed that all rain water within lease are collected in to pit, No water allowed to flow out of the lease.
		Report suggesting above measures is available.

9	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers	The EC also mentions ground is at depth of 80-100 mts
	during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon	We are not using ground water for any mining purpose.
	(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.	Drinking water quality report attached.
10	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. We are using water harvested by us and not stream water/surface water bodies for mining purposes.
11	The project proponent shall monitor the spring discharge on long term basis (at least one major spring) both in terms of quantity and quality of water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.	The quality parameter of nearby spring season has been monitored, report attached. Annexure1.
12	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Regular maintenance of vehicles is being done to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are being covered with tarpaulin while transportation of mineral.
13	Drills should either be operated with dust extractors or should be equipped with water injection system	Wet drilling is being done in drill holes for dust suppression by pumping water.
	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented	i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. All efforts such as use of nonel and delay, reduction in charge per hole etc. are being taken to mitigate impact of blasting.
15	Consent to operate should be obtained from SPCB prior to start of production of mine	Consent to operate has been obtained prior to start of production. The existing consent to operate validity is upto 31.12.2020.
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	There is no effluent discharge from Mine hence ETP has not been installed. The sewage water from domestic uses is being collected through individual septic tanks & soak pits. Sewage is collected to an integrated soak pit.

17	Land ouster and land loser/affected people should be	Land ouster and land loser/affected
	compensated and rehabilitated as per the National	people are being compensated and
	Policy on Resettlement and Rehabilitation of project	rehabilitated as per statute/guidelines.
	Affected Families (NPRR), 2003	
18	The higher benches of the excavated void to be	Water harvesting pond has been terraced
	converted into water reservoir shall be terraced and	and afforested to stabilize slopes.
	afforested to stabilize the slopes. Peripheral fencing	Peripheral fencing provided along
	shall be done along the excavated area.	excavated area.
19	A Final Mine Closure Plan along with details of	Mining Plan along with progressive mine
	Corpus Fund should be submitted to the Ministry of	closure plan has been approved by Indian
	Environment & Forests 5 years in advance of final	Bureau of Mines. Final Mine Closure
	mine closure for approval.	Plan will be submitted in due time.
		Based on present resource estimate and
		peak rated production capacity mentioned
		in EC, tentative balance life is around 23-
		24 years. However, after completion of
		further detailed exploration, resources
		estimate vis-à-vis balance life of mine
		may change based on final resource
		estimate, EC capacity and cut-off grade at
		that point of time.

General Conditions.

Sl 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 & Forests.	Being adhered to.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Being adhered to. Bauxite production are in line with calendar plan. Quantum of mineral and OB excavated during the month April'18 to September'18 has been annexed as Annexure-4.
3	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife departments.	Plan for conservation measures for protection of flora and fauna in the core & buffer zone is already prepared.
4	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Monitoring report annexed as Annexure- 1.

	1	
5	Data on ambient air quality (RPM, SPM, SO2 and NOx) should be regularly submitted to the Ministry including its Regional office located at	Monitoring report annexed as Annexure- 1.
	Bhopal and the State Pollution Control Board /	
	Central Pollution Control Board once in six	
	months.	
6	Fugitive dust emissions from all the sources should	Mobile water tanker with sprinkling
	be controlled regularly. Water spraying	facility has been provided along haul
	arrangement on haul roads, loading and unloading	roads, loading, unloading & at transfer
	and at transfer points should be provided and	points to arrest dust emission.
	properly maintained.	
7	Measures should be taken for control of noise	Being Complied.
	levels below 85 dBA in the work environment.	PPEs are provided to workers.
	Workers engaged in operations of HEMM, etc.	
	should be provided with ear plugs / muffs.	
8	Industrial waste water (workshop and waste water	Presently, there is no effluent discharge
	from the mine) should be properly collected,	from mine.
	treated so as to conform to the standards prescribed	
	under GSR 422 (E) dated 19th May, 1993 and 31st	
	December, 1993 or as amended from time to time.	
	Oil and grease trap should be installed before	
0	discharge of workshop effluents.	DDE: 1.1
9	Personnel working in dusty areas should wear	PPE's provided.
	protective respiratory devices and they should also	Periodic training on safety &
	be provided with adequate training and information on safety and health aspects.	occupational health is being imparted to
	information on safety and health aspects. Occupational health surveillance program of the	workers and health checks up conducted.
	workers should be undertaken periodically to	
	observe any contractions due to exposure to dust	
	and take corrective measures, if needed.	
10	A separate environmental management cell with	A separate environmental management
	suitable qualified personnel should be set-up under	
	the control of a Senior Executive, who will report	already formed and informed. (Annexure-
	directly to the Head of the Organization	3)
11	The project authorities should inform to the	Mining Plan along with progressive mine
	Regional Office located at Bhubneshwar regarding	closure plan has been approved by IBM,
	date of financial closures and final approval of the	Ranchi. This is an operating mine, hence
	project by the concerned authorities and the date of	provision related to financial closure not
	start of land development work.	applicable.
12	The funds earmarked for environmental protection	Separate budget is being prepared for
	measures should be kept in separate account and	purpose and expenditure is being reported
	should not be diverted for other purpose. Year wise	to the ministry. (Annexure-2)
	expenditure should be reported to the Ministry and	
10	its Regional Office located at Bhubneshwar.	771 D 1 4 4 1
13	The project authorities should inform to the	Vide Point no. 11 above.
	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.	
1.4	The Designal Office of this Ministry legated at	A arread and is being done
14	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the	Agreed and is being done.
	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.	
15	A copy of clearance letter will be marked to	Complied.
	concerned Panchayat / local NGO, if any, from	_
	whom and suggestion / representation has been	
	received while processing the proposal.	
16	State Pollution Control Board should display a	Displayed.
	copy of the clearance letter at the Regional office,	
	District Industry Centre and Collector's office/	
1.7	Tehsildar's Office for 30 days.	
17	The project authorities should advertise at least in	Complied. (Documents already
	two local newspapers widely circulated, one of	submitted).
	which shall be in the vernacular language of the locality concerned, within 7 days of the issue of	
	the clearance letter informing that the project has	
	been accorded environmental clearance and a copy	
	of the clearance letter is available with the State	
	Pollution Control Board and also at web site of the	
	Ministry of Environment and Forests at http:/	
	/envfor.nic.in and a copy of the same should be	
	forwarded to the Regional Office of this Ministry	
	located Bhubneshwar.	



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

NETARHAT PLATEAU- ENVIRONMENTAL MONITORING REPORT

APRIL TO JUNE 2018

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey SENIOR EXECUTIVE Reychi (c)

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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

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	LOCATION	
	AMBIENT AIR QUALITY	
1	Gurdari Mines Quarry 6B	
2	Gurdari Mines Weigh Bridge	
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5	Kujam I Quarry I	
6	Kujam I Quarry II	
7	Amtipani Mines Near Office	
8	Amtipani Mines Near Quarry	
	NOISE LEVEL	
1	Gurudari Pit (584.19 ha.) Netarhat Plateau	
2	Kujam-I (80.87 ha.) Netarhat Plateau	
3	Kujam-II (157.38 ha.) Netarhat Plateau	
4	Amtipani Mines Pit	
	SPOT NOISE LEVEL	
1	Poclain at Haralagda Pit	
2	Compressor Near Quarry 4 at Kujam-II	
3	Drill Rig at Working Pit Kujam-I	
	DRINKING WATER	
1.	Gurdari Pit (584.19 ha.)	
2.	Amtipani Camp.	



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0201/2018-19 **Date:** 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga Postal Code: 835203 State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING** Marks on Sample: Location: *Gurdari Mines Quarry 6B*

Sample collected on: 10.06.2018

	LOCATION / IDENTIFICATION: Gurdari Mines Quarry 6B					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	71.7		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	33.9		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	5.8		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	6.9		
05.	Ammonia (NH ₃)	μg/m³	400	11.4		
06.	Ozone (0 ₃)	μg/m³	180	12.5		
07.	Carbon Monoxide (CO)	mg/m³	02	0.33		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.8		
10.	Arsenic (As)	μg/m³	06	2.1		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.0		
12.	Benzo (a) Pyrene	μg/m³	01	0.30		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0202/2018-19 **Date:** 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga Postal Code: 835203 State: Jharkhand Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**Marks on Sample: Location: *Gurdari Mines - Weigh Bridge*

Sample collected on: 10.06.2018

	LOCATION / IDENTIFICATION: Gurdari Mines Weigh Bridge						
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration			
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	79.2			
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	38.5			
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	5.3			
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	7.7			
05.	Ammonia (NH ₃)	μg/m³	400	10.6			
06.	Ozone (O ₃)	μg/m³	180	12.2			
07.	Carbon Monoxide (CO)	mg/m³	02	0.40			
08.	Lead (Pb)	μg/m³	1.0	0.03			
09.	Nickel (Ni)	μg/m³	20	2.4			
10.	Arsenic (As)	μg/m³	06	2.0			
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.2			
12.	Benzo (a) Pyrene	μg/m³	01	0.30			

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0203/2018-19 **Date:** 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: **Lohardaga** Postal Code: **835203**

State: **Jharkhand** Country: **India**

Sample Type: **AMBIENT AIR QUALITY MONITORING** Marks on Sample: Location: **Kujam II Weigh Bridge**

Sample collected on: **11.06.2018**

	LOCATION / IDENTIFICATION: Kujam II Weigh Bridge					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	73.1		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	31.4		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	4.8		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	6.5		
05.	Ammonia (NH ₃)	μg/m³	400	10.1		
06.	Ozone (O ₃)	μg/m³	180	12.0		
07.	Carbon Monoxide (CO)	mg/m³	02	0.40		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.5		
10.	Arsenic (As)	μg/m³	06	2.2		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.1		
12.	Benzo (a) Pyrene	μg/m³	01	0.33		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0204/2018-19 **Date:** 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: **Lohardaga**

Postal Code: **835203** State: **Jharkhand** Country: **India**

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Kujam II Quarry

Sample collected on: 11.06.2018

	LOCATION / IDENTIFICATION: Kujam II Quarry					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	80.3		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	37.6		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	5.2		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	6.4		
05.	Ammonia (NH ₃)	μg/m³	400	11.8		
06.	Ozone (O ₃)	μg/m³	180	12.3		
07.	Carbon Monoxide (CO)	mg/m ³	02	0.38		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.7		
10.	Arsenic (As)	μg/m³	06	2.0		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.3		
12.	Benzo (a) Pyrene	μg/m³	01	0.30		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0205/2018-19 **Date:** 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: **835203**State: **Jharkhand**Country: **India**

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Kujam I Quarry I

Sample collected on: 11.06.2018

	LOCATION / IDENTIFICATION: Kujam I Quarry I				
Sl. No.	PARAMETERS		Standard Limit	Concentration	
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	84.7	
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	42.0	
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	5.9	
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	8.2	
05.	Ammonia (NH ₃)	μg/m³	400	11.3	
06.	Ozone (O ₃)	μg/m³	180	12.9	
07.	Carbon Monoxide (CO)	mg/m ³	02	0.40	
08.	Lead (Pb)	μg/m³	1.0	0.03	
09.	Nickel (Ni)	μg/m³	20	2.9	
10.	Arsenic (As)	μg/m³	06	2.1	
11.	Benzene (C ₆ H ₆)	μg/m³	05	3.0	
12.	Benzo (a) Pyrene	μg/m³	01	0.35	

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0206/2018-19 **Date:** 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: **Lohardaga**

Postal Code: **835203**State: **Jharkhand**Country: **India**

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Kujam I Quarry II

Sample collected on: 11.06.2018

	LOCATION / IDENTIFICATION: Kujam I Quarry II					
Sl. No.	PARAMETERS		Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	70.3		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	33.4		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	5.1		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	7.0		
05.	Ammonia (NH ₃)	μg/m³	400	10.3		
06.	Ozone (0 ₃)	μg/m³	180	11.7		
07.	Carbon Monoxide (CO)	mg/m ³	02	0.36		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.3		
10.	Arsenic (As)	μg/m³	06	2.1		
11.	Benzene (C ₆ H ₆)	μg/m³	05	3.0		
12.	Benzo (a) Pyrene	μg/m³	01	0.40		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0207/2018-19 Date: 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga Postal Code: 835203

State: Jharkhand Country: India

Sample type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Amtipani Mines Near Office

Sample collected on: 10.06.2018

	LOCATION / IDENTIFICATION: Near Amtipani Mines Near Office					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	77.2		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	36.6		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	4.9		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	7.2		
05.	Ammonia (NH ₃)	μg/m³	400	10.0		
06.	Ozone (O ₃)	μg/m³	180	13.4		
07.	Carbon Monoxide (CO)	mg/m ³	02	0.37		
08.	Lead (Pb)	μg/m³	1.0	0.02		
09.	Nickel (Ni)	μg/m³	20	2.4		
10.	Arsenic (As)	μg/m³	06	1.7		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.0		
12.	Benzo (a) Pyrene	μg/m³	01	0.34		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0208/2018-19 Date: 14th July, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga Postal Code: 835203

State: Jharkhand Country: India

Sample type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Amtipani Mines - Near Quarry

Sample collected on: 10.06.2018

	LOCATION / IDENTIFICATION: Amtipani Mines Near Quarry					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	82.0		
02.	Particulate Matter (size less than 2.5 μ m) PM _{2.5}	μg/m³	60	36.1		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	5.0		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	7.3		
05.	Ammonia (NH ₃)	μg/m³	400	9.5		
06.	Ozone (O ₃)	μg/m³	180	12.8		
07.	Carbon Monoxide (CO)	mg/m³	02	0.40		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.6		
10.	Arsenic (As)	μg/m³	06	1.8		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.0		
12.	Benzo (a) Pyrene	μg/m³	01	0.30		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0209/2018-19 **Date:** 14th July, 2018

Sample described by customer: Measurement of Noise

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga** Postal Code: **835203**

State: **Jharkhand** Country: **India**

Sample Description: Measurement of Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 10.06.2018

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Gurdari Pit (584.19 ha.) Netarhat Plateau	dB (A) L _{eq}	75	62.7	70	55.2

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0210/2018-19 **Date:** 14th July, 2018

Sample described by customer: Measurement of Noise

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga** Postal Code: **835203**

State: **Jharkhand** Country: **India**

Sample Description: Measurement of Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 11.06.2018

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Kujam-I (80.87 ha.) Netarhat Plateau	dB (A) L _{eq}	75	68.7	70	57.0

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0211/2018-19 **Date:** 14th July, 2018

Sample described by customer: Measurement of Noise

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga** Postal Code: **835203** State: **Jharkhand**

Country: **India**

Sample Description: Measurement of Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 11.06.2018

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Kujam-II (157.38 ha.) Netarhat Plateau	dB (A) L _{eq}	75	71.1	70	59.5

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey SENIOR EXECUTIVE



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0212/2018-19 **Date:** 14th July, 2018

Sample described by customer: Measurement of Noise

Client Name: Hindalco Industries Limited

Client Address: Lohardaga **Postal Code:** 835203

State: Jharkhand Country: India

Sample Description: Measurement of Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 10.06.2018

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Amtipani Mines Pit	dB (A) L _{eq}	75	65.7	70	59.1

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0213/2018-19 **Date:** 14th July, 2018

Sample described by customer: Measurement of Spot Noise

Client Name: Hindalco Industries Limited

Client Address: Lohardaga Postal Code: 835203 State: Jharkhand Country: India

Sample Description: Measurement of Spot Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 10.06.2018

Location/Identification	Unit	Limit (day)	Result
Gurudari Mines (584.19 ha.) Poclain at Haralagda Pit	dB (A) L _{eq}	75	73.5

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0214/2018-19 **Date:** 14th July, 2018

Sample described by customer: Measurement of Spot Noise

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga** Postal Code: **835203**

State: **Jharkhand** Country: **India**

Sample Description: Measurement of Spot Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 11.06.2018

Location/Identification	Unit	Limit (day)	Result
Kujam-II Mines (157.38 ha.)	dD (V) I	75	74.3
Compressor at Quarry No.4	dB (A) L _{eq}	/3	/4.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0215/2018-19 Date: 14th July, 2018

Sample described by customer: Measurement of Spot Noise

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga**Postal Code: **835203**State: **Iharkhand**

State: **Jharkhand** Country: **India**

Sample Description: Measurement of Spot Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 11.06.2018

Location/Identification	Unit	Limit (day)	Result
Kujam-I Mines (80.87 ha.) Drill rig at Working Pit	dB (A) L _{eq}	75	73.9

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0216/2018-19 **Date:** 14th July, 2018

Sample described by customer: DRINKING WATER-POTABILITY

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203 State: Jharkhand Country: India

Sample Type: DRINKING WATER-POTABILITY

Marks on Sample: Location: Drinking Water of Gurdari Pit (584.19 ha.)

Sample collected on: 10.06.2018

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	1	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste		Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.12	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	рН		6.8	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	358	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05		APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichioramines	mg/l	<0.05		APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO3)	mg/l	37	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinirty Total (as CaCO3)	mg/l	43	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as CI)	mg/l	11.7	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO4)	mg/l	7.1	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
14	Nitrate (as NO3)	mg/l	1.22	45 max	APHA 22 nd Ed. 2012, 4500-N03-E, 4-125





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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Continuation Sheet

15 Fluoride (as F) mg/l 0.09 0.5 max APHA 22md Ed. 2012, 4500-BB, 4-25 25 27 27 28 28 28 29 29 30 max APHA 22md Ed. 2012, 3500-Ca-B, 3-67 3-84 APHA 22md Ed. 2012, 3500-Ca-B, 3-84 APHA 22md Ed. 2012, 3500-Mg-B, 3-84 APHA 22md Ed. 2012, 3500-Mg-B, 3-84 APHA 22md Ed. 2012, 3500-Mg-B, 3-84 APHA 22md Ed. 2012, 4500-NH3-F, 4-115 APHA 22md Ed. 2012, 4500-NH3-F, 4-115 APHA 22md Ed. 2012, 3111-B, 3-18 APHA 22md Ed. 2012, 3111-						MEEPL / JULY0216/2018-19
16 Boron (as B) mg/l 0.09 0.5 max APHA 22ad Ed. 2012, 4500-BB, 4-25	15	Fluoride (as F)	mg/l	0.12	1 max	APHA 22 nd Ed. 2012, 4500-FB &
17			<i>-</i>			D, 4-84, 4-8/
To Calcium (as Ca) mg/l 12.9 75 max APHA 22 md Ed. 2012, 3500-Ca-B, 3-67	16	Boron (as B)	mg/l	0.09	0.5 max	
17						
18	17	Calcium (as Ca)	mg/l	12.9	75 max	
19	10	Manager (and Man)	(1	2.0	20	APHA 22 nd Ed. 2012, 3500-Mg-B,
Ammonia	18		mg/i	2.9	30 max	
Ammonia	19	O ,	mg/l	<0.1		
20 Iron (as Fe) mg/l 0.14 0.3 max 18	1)	Ammonia	1115/1	\0.1		
18	20	Iron (as Fe)	mg/l	0.14	0.3 max	
Manganese (as Mn)		non (ab r c)	1118/1	0.11	olo man	_
18	21	Manganese (as Mn)	mg/l	N.D	0.1 max	
Aluminum (as Al) mg/l 0.01 0.03 max 3-61		3 (87			
Cadmium (as Cd)	22	Aluminium (as Al)	mg/l	0.01	0.03 max	
Cadmium (as Cd)		,	0,			
24 Chromium Total (as Cr) mg/l N.D 0.05 max APHA 22nd Ed. 2012, 3111-B, 3-18	23	Cadmium (as Cd)	mg/l	N.D	0.003 max	
24			- 0,			
25 Copper (as Cu) mg/l N.D 0.05 max APHA 22nd Ed. 2012, 3111-B, 3-18	24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	
Copper (as Cu)		1				
26 Lead (as Pb) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3111-B, 3-18 27 Zinc (as Zn) mg/l 0.04 5 max APHA 22nd Ed. 2012, 3111-B, 3-18 28 Arsenic (as As) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 29 Selenium (as Se) mg/l N.D 0.001 max APHA 22nd Ed. 2012, 3112-B, 3-23 30 Mercury (as hg) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 31 Nickel (as Ni) mg/l <0.01	25	Copper (as Cu)	mg/l	N.D	0.05 max	
25			-			_
27 Zinc (as Zn) mg/l 0.04 5 max APHA 22nd Ed. 2012, 3111-B, 3-18 28 Arsenic (as As) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 29 Selenium (as Se) mg/l N.D 0.001 max APHA 22nd Ed. 2012, 3112-B, 3-23 30 Mercury (as hg) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 31 Nickel (as Ni) mg/l <0.01	26	Lead (as Pb)	mg/l	N.D	0.01 max	
27 Zinc (as Zh) mg/l 0.04 5 max 18 28						
28 Arsenic (as As) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 29 Selenium (as Se) mg/l N.D 0.001 max APHA 22nd Ed. 2012, 3112-B, 3-23 30 Mercury (as hg) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 31 Nickel (as Ni) mg/l <0.01	27	Zinc (as Zn)	mg/l	0.04	5 max	
28 Arsenic (as As) mg/l N.D 0.01 max 38 29 Selenium (as Se) mg/l N.D 0.001 max APHA 22nd Ed. 2012, 3112-B, 3-23 30 Mercury (as hg) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 31 Nickel (as Ni) mg/l N.D 0.02 max APHA 22nd 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 22nd ED. 2012, 4500-CN.C & 4-39 & 4-44 34 Anionic detergents as MBAS mg/l <0.1						
29 Selenium (as Se) mg/l N.D 0.001 max APHA 22nd Ed. 2012, 3112-B, 3-23 30 Mercury (as hg) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 31 Nickel (as Ni) mg/l <0.01	28	Arsenic (as As)	mg/l	N.D	0.01 max	
29 Selenium (as Se) mg/l N.D 0.001 max 23 30 Mercury (as hg) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 31 Nickel (as Ni) mg/l <0.01						
30 Mercury (as hg) mg/l N.D 0.01 max APHA 22nd Ed. 2012, 3114-B, 3-38 31 Nickel (as Ni) mg/l <0.01	29	Selenium (as Se)	mg/l	N.D	0.001 max	
Mercury (as hg) mg/l N.D 0.01 max 38 31 Nickel (as Ni) mg/l <0.01 0.02 max APHA 22nd Ed. 2012, 3111-B, 3-18 18 IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1 Reaffirmed 2003: ed. 2.1 Reaffirmed 2003: ed. 2.1 APHA 22nd ED. 2012, 4500-CN.C &4-39 &4-44 APHA 22nd ED. 2012, 5540-C.C &5-53 APHA 22nd ED. 2012, 5540-C.C &5-53 APHA 22nd ED. 2012, 5530-B & C C6H50H mg/l N.D 0.001 max APHA 22nd ED. 2012, 5530-B & C 5-4753 APHA 22nd ED. 2012, 5530-B & C S-4753 APHA 22nd ED. 2012, 6440, 6-93 APHA 22nd ED.						
31 Nickel (as Ni) mg/l <0.01	30	Mercury (as hg)	mg/l	N.D	0.01 max	
Mineral Oil mg/l N.D 0.5 max 18 IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1						
Reaffirmed 2003: ed. 2.1	31	Nickel (as Ni)	mg/l	<0.01	0.02 max	
Reaffirmed 2003: ed. 2.1	22	M: 10:1	Л	ND	0.5	IS 3025 (Part 39): 1991,
33 Cyanide (as CN) mg/l N.D 0.05 max APHA 22nd ED. 2012, 4500-CN.C & 4-39 & 4-44 34 Anionic detergents as MBAS mg/l <0.1	32	Mineral Oil	mg/I	N.D	0.5 max	Reaffirmed 2003: ed. 2.1
33 Cyanide (as CN) mg/l N.D 0.03 max & 4-39 & 4-44 34 Anionic detergents as MBAS mg/l <0.1 0.2 max APHA 22 nd ED. 2012, 5540-C.C & 5-53 35 Phenolic compounds (as C6H50H) mg/l N.D 0.001 max APHA 22 nd ED. 2012, 5530-B & C 5-4753 36 Polynuclear aromatic hydrocarbons (PAH) mg/l N.D 0.0001 max APHA 22 nd ED. 2012, 6440, 6-93 37 Polychlorinated Biphenyls (PCBs) mg/l N.D 0.0005 max USEPA Method 8082	22	Cid- (CNI)	/1	N.D.	0.05	APHA 22 nd ED. 2012, 4500-CN.C
34	33	Cyanide (as CN)	mg/i	N.D	0.05 max	& 4-39 & 4-44
S-53	2.4	Anionia determenta as MDAC	c- /1	-0.1	0.2	APHA 22 nd ED. 2012, 5540-C.C &
35 C6H5OH) mg/l N.D 0.001 max 5-4753	34	Amonic detergents as MDAS	IIIg/I	<0.1	U.Z IIIax	5-53
36 Polynuclear aromatic hydrocarbons (PAH) 37 Polychlorinated Biphenyls (PCBs) mg/l N.D 0.0001 max mg/l N.D 0.0005 max MPHA 22 nd ED. 2012, 6440, 6-93 USEPA Method 8082	25	Phenolic compounds (as	m a /l	N D	0.001 may	APHA 22 nd ED. 2012, 5530-B & C
hydrocarbons (PAH) Polychlorinated Biphenyls (PCBs) mg/l N.D max APHA 22 nd ED. 2012, 6440, 6-93 mg/l N.D max USEPA Method 8082	33		IIIg/I	N.D		5-4753
37 Polychlorinated Biphenyls (PCBs) mg/l N.D 0.0005 max USEPA Method 8082	36		ma /1	ND	0.0001	ADHA 22nd ED 2012 6440 6 02
37 (PCBs) mg/l N.D max USEPA Method 8082	30	hydrocarbons (PAH)	mg/1	ע.ויו		AFTIA 22** ED. 2012, 0440, 0-93
[PCBS] max	37		mg/l	ND	0.0005	IISEDA Method 2022
ADIIA 22nd ED 2012 4500 C2 C	37	(PCBs)	mg/1	וא.ט	max	
	38	Sulphide (2s S)	mg/l	ND	0.05 may	APHA 22 nd ED. 2012, 4500-S2-C
30 Sulphide (as 3) Ilig/1 N.D 0.03 Illax 4- 175 & F 4-178	30	Juipinue (as 5)	mg/1	ע.וע	U.UJ IIIdX	4- 175 & F 4-178



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Hindalco Industries :

Environmental Monitoring Report

APRIL - JUNE 2018

Continuation Sheet

MEEPL/JULY0216/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbio	ological Analysis			•	
					APHA 22 nd Ed. 2012,
1	Total Coliforms	MPN/100mL	N.D	Absent	9221-B & C, 9-66, 9-69
					and 9-67
					APHA 22 nd Ed. 2012,
2	E-Coli	MPN/100mL	N.D	Absent	9221-B & C, 9-66, 9-69
					and 9-76
Pesticid	es Residues				
3	p.p DDT	μg/L	N.D	1	US EPA 508-1995
4	o.p DDT	μg/L	N.D	1	US EPA 508-1995
5	p.p DDE	μg/L	N.D	1	US EPA 508-1995
6	o.p DDE	μg/L	N.D	1	US EPA 508-1995
7	p.p DDD	μg/L	N.D	1	US EPA 508-1995
8	o.p DDD	μg/L	N.D	1	US EPA 508-1995
9	γ-HCH (Lindance)	μg/L	< 0.01	2	US EPA 508-1995
10	α –НСН	μg/L	N.D	0.01	US EPA 508-1995
11	β-НСН	μg/L	N.D	0.04	US EPA 508-1995
12	Б- НСН	μg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	μg/L	N.D	125	US EPA 508-1995
14	Alachlor	μg/L	N.D	20	US EPA 508-1995
15	Atrazine	μg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	μg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	μg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	μg/L	N.D	0.4	US EPA 508-1995
19	Ethion	μg/L	N.D	3	US EPA 8141A-1994
20	Malathion	μg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	μg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	μg/L	N.D	1	US EPA 8141A-1994
23	Phorate	μg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	μg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	μg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	μg/L	N.D	0.03	US EPA 508-1995
Remarks	: N.D- Not Detected	1.0	1	L	1

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

For Mahabal Enviro Engineers Pvt. Ltd.

9.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries:

Environmental Monitoring Report

APRIL - JUNE 2018

Report no: MEEPL/JULY0217/2018-19 **Date:** 14th July, 2018

Sample described by customer: DRINKING WATER-POTABILITY

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203 State: Jharkhand Country: India

Sample Type: DRINKING WATER-POTABILITY

Marks on Sample: Location: Drinking Water of Amtipani Camp

Sample collected on: 10.06.2018

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour		Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste		Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.14	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	рН		6.8	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	390	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05		APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichioramines	mg/l	<0.05		APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO3)	mg/l	41	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinirty Total (as CaCO3)	mg/l	49	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as CI)	mg/l	12.5	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO4)	mg/l	7.5	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
14	Nitrate (as NO3)	mg/l	1.28	45 max	APHA 22 nd Ed. 2012, 4500-NO3-E, 4-125





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Environmental Monitoring Report

APRIL - JUNE 2018

Continuation Sheet

					MEEPL / JULY0217/2018-19
15	Fluoride (as F)	mg/l	0.12	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.09	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-
		-			25 APHA 22 nd Ed. 2012, 3500-Ca-B,
17	Calcium (as Ca)	mg/l	16.5	75 max	3-67
18	Magnesium (as Mg)	mg/l	3.1	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1		APHA 22 nd Ed. 2012, 4500-NH3- F, 4-115
20	Iron (as Fe)	mg/l	0.13	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3- 18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.05	5 max	APHA 22 nd Ed. 2012, 3111-B, 3- 18
28	Arsenic (as As)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.01	0.02 max	APHA 22 nd 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 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C6H5OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd 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 nd ED. 2012, 4500-S2-C 4- 175 & F 4-178



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Hindalco Industries :

Environmental Monitoring Report

APRIL - JUNE 2018

Continuation Sheet

MEEPL/JULY0217/2018-19

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

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

For Mahabal Enviro Engineers Pvt. Ltd.

9 -

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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

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Mahabal Enviro Engineers Pvt. Ltd.

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

NETARHAT PLATEAU- ENVIRONMENTAL MONITORING REPORT

JULY TO SEPTEMBER 2018

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey SENIOR EXECUTIVE

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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

CONTENT

	LOCATION
	AMBIENT AIR QUALITY
1	Gurdari Mines Quarry 6B
2	Gurdari Mines Weigh Bridge
3	Kujam II Weigh Bridge
4	Kujam II Quarry
5	Kujam I Quarry I
6	Kujam I Quarry II
7	Amtipani Mines Near Office
8	Amtipani Mines Near Quarry



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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0163/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga Postal Code: 835203 State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING** Marks on Sample: Location: *Gurdari Mines Quarry 6B*

Sample collected on: 10.09.2018

	LOCATION / IDENTIFICATION: Gurdari Mines Quarry 6B					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	60		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	28		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	2.8		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	3.6		
05.	Ammonia (NH ₃)	μg/m³	400	6.2		
06.	Ozone (O ₃)	μg/m³	180	10.0		
07.	Carbon Monoxide (CO)	mg/m³	02	0.30		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.3		
10.	Arsenic (As)	μg/m³	06	2.1		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.0		
12.	Benzo (a) Pyrene	μg/m³	01	0.30		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0164/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga Postal Code: 835203 State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**Marks on Sample: Location: *Gurdari Mines - Weigh Bridge*

Sample collected on: 10.09.2018

	LOCATION / IDENTIFICATION: Gurdari Mines Weigh Bridge					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	73		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	31		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	3.0		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	3.8		
05.	Ammonia (NH ₃)	μg/m³	400	6.9		
06.	Ozone (0 ₃)	μg/m³	180	9.5		
07.	Carbon Monoxide (CO)	mg/m ³	02	0.34		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.1		
10.	Arsenic (As)	μg/m³	06	2.0		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.2		
12.	Benzo (a) Pyrene	μg/m³	01	0.30		

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0165/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga**Postal Code: **835203**State: **Jharkhand**

Country: **India**

Sample Type: **AMBIENT AIR QUALITY MONITORING** Marks on Sample: Location: **Kujam II Weigh Bridge**

Sample collected on: 10.09.2018

	LOCATION / IDENTIFICATION: Kujam II Weigh Bridge					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	66		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	25		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	3.5		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	4.1		
05.	Ammonia (NH ₃)	μg/m³	400	7.4		
06.	Ozone (O ₃)	μg/m³	180	10.5		
07.	Carbon Monoxide (CO)	mg/m³	02	0.38		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.0		
10.	Arsenic (As)	μg/m³	06	2.2		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.1		
12.	Benzo (a) Pyrene	μg/m³	01	0.33		

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0166/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga**Postal Code: **835203**State: **Jharkhand**

Country: **India**

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Kujam II Quarry

Sample collected on: **10.09.2018**

	LOCATION / IDENTIFICATION: Kujam II Quarry					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	74		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	35		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	3.7		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	4.0		
05.	Ammonia (NH ₃)	μg/m³	400	7.2		
06.	Ozone (O ₃)	μg/m³	180	10.5		
07.	Carbon Monoxide (CO)	mg/m³	02	0.32		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.3		
10.	Arsenic (As)	μg/m³	06	2.0		
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.3		
12.	Benzo (a) Pyrene	μg/m³	01	0.30		

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0167/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga** Postal Code: **835203**

State: **Jharkhand** Country: **India**

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Kujam I Quarry I

Sample collected on: 11.09.2018

	LOCATION / IDENTIFICATION: Kujam I Quarry I					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration		
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	78		
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	36		
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	3.5		
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	4.3		
05.	Ammonia (NH ₃)	μg/m³	400	7.0		
06.	Ozone (O ₃)	μg/m³	180	9.2		
07.	Carbon Monoxide (CO)	mg/m³	02	0.35		
08.	Lead (Pb)	μg/m³	1.0	0.03		
09.	Nickel (Ni)	μg/m³	20	2.5		
10.	Arsenic (As)	μg/m³	06	2.1		
11.	Benzene (C ₆ H ₆)	μg/m³	05	3.0		
12.	Benzo (a) Pyrene	μg/m³	01	0.35		

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0168/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: **Lohardaga**Postal Code: **835203**State: **Jharkhand**

Country: **India**

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Kujam I Quarry II

Sample collected on: 11.09.2018

	LOCATION / IDENTIFICATION: Kujam I Quarry II											
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration								
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	63								
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	29								
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	2.7								
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	3.4								
05.	Ammonia (NH ₃)	μg/m³	400	6.5								
06.	Ozone (O ₃)	μg/m³	180	10.1								
07.	Carbon Monoxide (CO)	mg/m³	02	0.32								
08.	Lead (Pb)	μg/m³	1.0	0.03								
09.	Nickel (Ni)	μg/m³	20	2.0								
10.	Arsenic (As)	μg/m³	06	2.1								
11.	Benzene (C ₆ H ₆)	μg/m³	05	3.0								
12.	Benzo (a) Pyrene	μg/m³	01	0.40								

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0169/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga **Postal Code:** 835203

State: Jharkhand Country: India

Sample type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Amtipani Mines Near Office

Sample collected on: 11.09.2018

	LOCATION / IDENTIFICATION: Near Amtipani Mines Near Office											
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration								
01.	Particulate Matter (size less than $10 \mu m$) PM_{10}	μg/m³	100	70.0								
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	μg/m³	60	31.3								
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	3.1								
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	3.9								
05.	Ammonia (NH ₃)	μg/m³	400	8.0								
06.	Ozone (O ₃)	μg/m³	180	11.2								
07.	Carbon Monoxide (CO)	mg/m³	02	0.35								
08.	Lead (Pb)	μg/m³	1.0	0.02								
09.	Nickel (Ni)	μg/m³	20	2.2								
10.	Arsenic (As)	μg/m³	06	1.5								
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.0								
12.	Benzo (a) Pyrene	μg/m³	01	0.34								

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



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Hindalco Industries:

Environmental Monitoring Report

JULY - SEPTEMBER 2018

Report no: MEEPL/OCT0170/2018-19 **Date:** 10th October, 2018

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203 **State:** Jharkhand **Country:** India

Sample type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Amtipani Mines - Near Quarry

Sample collected on: 11.09.2018

	LOCATION / IDENTIFICATION: Amtipani Mines Near Quarry												
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration									
01.	Particulate Matter (size less than 10 μ m) PM_{10}	μg/m³	100	75									
02.	Particulate Matter (size less than 2.5 μ m) PM _{2.5}	μg/m³	60	32									
03.	Sulphur Dioxide (SO ₂)	μg/m³	80	3.6									
04.	Nitrogen Dioxide (NO ₂)	μg/m³	80	4.3									
05.	Ammonia (NH ₃)	μg/m³	400	7.9									
06.	Ozone (O ₃)	μg/m³	180	9.9									
07.	Carbon Monoxide (CO)	mg/m³	02	0.37									
08.	Lead (Pb)	μg/m³	1.0	0.03									
09.	Nickel (Ni)	μg/m³	20	2.3									
10.	Arsenic (As)	μg/m³	06	1.6									
11.	Benzene (C ₆ H ₆)	μg/m³	05	2.0									
12.	Benzo (a) Pyrene	μg/m³	01	0.30									

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey



BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING April'18 to Sept'18

The composite cost during April'18 to Sept'18 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115,13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud, Orsa pat(196.36 Ha), Bhusar (65.31 Ha)& Bimarla Bauxite Mines (134.52 Ha).

SI No	Description	Budget (in Rupees) FY 2018-19	Actual (in Rupees) (from April'18 to Sep'2018)
1	Pollution Control & Environment monitoring	1521000	8,82,300.00
2	Reclamation/ Back filing & Rehabilitation**	29200000	1,49,78,461.39
3	Green belt, Plantation & Water spraying arrangement	4500256	25,38,864.95
4	Rural Development	26025236	1,32,42,312.42

^{**}Part of OB removed cost.

(Basudev Gangopadhyay)
Convenor (Quality & Environment)

Amexure-3



Date: 03.04.17

Office Order

Environmental Cell has been re-constituted at Amtipani Bauxite Mines (Area 190.95 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. R.K.Parida (Coordinator)
- 2. Mr. Avijit Maji (Member)
- 3. Mr Ajoy Singh (Member)
- 4. Satish Kumar (Member)

Basudev Gangopadhyay
Convenor (Quality & Environment)

	11		10		9		8		,	7		6		(7		t	_		ω	,	2		1	No	SI	
	Orsapat Bauxite Mine		Jalim & Sanai Bauxite Mine		Shrengdag B Bauxite Mine		Shrengdag A Bauxite Mine			Gurdari Bauxite Mine		Amtipani Bauxite Mine			Kujam - II Bauxite Mine		rajaiii - Dauxire miiie	Kuiam - I Bauxite Mine		Hisri (New) Bauxite Mine		Bhusar Bauxite Mine		Bagru bauxite Mine		Name of the Mines	
	196.36		12.14		140.07		155.81			584.19		190.95			157.38		00.07	80.87		14.55		65.31		75.41	area (ha)	Mining lease	Production
	200000		50000		100000		260000			325000		150000			300000		100000	150000		100000		280000		85000	capacity(mt)*	Production	Production, Mined Out, Back Filled and Over Burden removal from April'18 to September'18
to 16-07-2036	17-07-1986	to 31-03-2030	16-10-1974	to 31-03-2030	04-10-1978	31-03-2030	16-10-1974	22-03-2035	to	23-03-1985	to 12-03-2056	13-03-2006	23-03-2056	to	24-03-2006	12-03-2056	to	13-03-2006	to 31-03-2030	19-07-1981	to 31-03-2030	11-07-1981	31-03-2030	22-01-1974	Period *	Lease	ack Filled and
	1470		18600		36100		108900			173295		83810		1	114325		00000	60550		38172		106353		nil	(MT)	Production	d Over Burde
	0		0.36		1.21		1.21			4.6		12			4.68		1.04	1 64		0.742		0.168		nil	area (ha)	Mined out	n removal from
	0		0.12		0.72		1.62			8.59		00		(3.78		1.37	1 37		0.467		1.711		nil	area (ha)	Back filled	m April'18 to
	2185		49104		46930		162637		201211	251277		96051			122769		40207	40287		29252		112376		nil	(Cu.M)	Over burden	September'18

18	17	16			15		14		13		12
Bimarla Bauxite Mine	Pakhar (109.507)	Pakhar (15.58)			Pakhar (115.13)		Pakhar (35.12)		Pakhar (8.09)		Chiro Kukud bauxite Mine
134.526	109.507	15.58	Minerals & Minerals Limited		115.13		35.12		8.09		152.57
300000	280000	60000	nerals Limited		300000		200000		80000		100000
18-07-2009 to 17-07-2059	26-07-2008 to 25-07-2058	28-04-1965 to 31-03-2030		to 31-03-2030	19-07-1996	to 31-03-2030	17-04-1975	to 31-03-2030	16-05-1973	to 28-01-2035	29-01-1985
89315	151240	27475			111995		nil		nil		1970
3.108	1.05	0.35			1.01		nil		nii		0.113
1.61	0.5	0.15			0.65		nil		nil		0
203116	78750	26250			70700		nil		nii		13168

*Static information about the mines included in the above table

Basudév Gangopadhyay

Convenor (Quality & Environment)