

HIL/LHD/ENV/MoEF/

Date: 27.11.2019

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

Sub: Compliance Report of EC conditions for Bhusar (65.31 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga, Jharkhand for the period April'19 to September'19.

Ref: Environmental Clearance No-J-11015/184/2011-IA.II (M) dated 17th June 2013.


Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bhusar (65.31 ha) Bauxite** Mining project of **M/s Hindalco Industries Limited** located in Lohardaga, Jharkhand for the period April'19 to September'19.

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED


(Basudev Gangopadhyay)
GM (Geology & Environment)

Enclosure: - As Above

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

Bhusar Bauxite Mines of M/s Hindalco Industries Limited

Area 65.31 Ha

Period: April'19 to September'19

Environmental Clearance No-J-11015/184/2011-IA.II (M) dated 17th June 2013.

SI No	Specific Condition	Compliance
(i)	All the conditions stipulated by State Pollution Control Board in their NOC shall be effectively implemented.	Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been obtained from time to time. Existing consent to operate is valid up to 30.09.2021 and implementations of conditions are being full filled with progress of mining.
(ii)	Environmental clearance is subject to obtaining clearance under the wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.	We understand this is not applicable.
(iii)	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Shallow depth mining is being done. Ground water table is much below working depth and lies at depth of 90-120 mts from mining horizon. Hence, ground water not intersected due to mining activities. EC also acknowledge that mine working will not intersect ground water. We undertake that no mining is/was carried out below groundwater table and the same statusco will be maintained in future also.
(iv)	The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.	Agreed. No natural water course is being and will be obstructed due to mining activities.
(v)	Top soil should be stacked with proper slope at earmarked site(s) only with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Top soil is being spread over back filled area in process of reclamation. Entire top soil generated earlier has been used for reclamation purpose.
(vi)	The entire waste generated shall be backfilled and there shall be no external over burden dump left at the	Over burden generated during mining operation temporarily stacked at earmarked dump site (s) only for purpose

	<p>end of the mine life. The entire backfilled area shall be reclaimed by plantation. The back filling should be carried out in such a manner that it is restored to the normal ground level. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment as Forests and its Regional Office, Bhubaneswar on six monthly basis.</p>	<p>of backfilling. Backfilling is in progress. The entire area is being reclaimed by suitable plantation which is under progressive stage as of now. Monitoring and management of rehabilitated area is continuous until vegetation becomes self-sustaining. There shall be no external dump left at the end of mine life as applicable. However existing dump is stabilized. Compliance status is being submitted to MoEF on six monthly bases.</p>
(vii)	<p>Catch drains and siltation ponds of appropriate size should be constructed for the working pit, temporary OB dumps, if any and mineral dumps to arrest flow of silt and sediment. 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 of appropriate size, gradient and length shall be constructed for both mine pit and temporary dumps and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>Catch drains and siltation ponds of appropriate size are being made. No run-off is being generated from mining activities. However to collect & manage rain water during monsoon, part of mined out area was and will be used as settling tank for the runoff. Rain water is being used for watering mine area, roads, green belt development, sprinkling on haul roads etc. and same practice will be continued.</p> <p>Garland drain of suitable size has been provided.</p> <p>Sump of adequate capacity is being provided and maintained as required</p> <p>Rainwater harvesting pond is provided within lease area.</p> <p>No Active external dump exists and old dumps are stabilized.</p>
(viii)	<p>Dimension of the retaining wall at the toe of temporary dumps and OB benches within the mine to check run-off and siltation should be based on the rain fall data.</p>	<p>Dimensions of the retaining wall of OB dumps are maintained based on average rain fall.</p>
(ix)	<p>Plantation shall be raised in an area of 52.50 ha including a 7.5m wide</p>	<p>It is already in practice. Phase wise plantation of native species in</p>

	<p>green belt in the safety zone around the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture Department at the end of life of mine. The density of the trees should be around 2500 plants per ha.</p>	<p>consultation with forest department has been carried out within safety zone and mined out/reclaimed pits.</p> <p>As on date approx 44.67 Ha area is covered with plantation. Total 7662 sapling have been planted during above period within the Bhusar mine lease area.</p> <p>Green belt development programme is in progress with progress of mining activities.</p>
(x)	<p>Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as haul road, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.</p>	<p>Mobile water tankers have been provided for sprinkling of water in critical areas to suppress dust. AAQ parameters in mine monitored on regular basis. (Attached as Annexure-1).</p>
(xi)	<p>The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.</p>	<p>A plan has been prepared to implement suitable conservation measures to augment ground water resources in area (Bagru Plateau).</p> <p>The water reservoir, contour bunds, gullies in mining lease area is so designed that all the rain water within lease will be collected in pond only. Required slope is being maintained for this purpose. No water is allowed to flow out of lease. Near the portion of the slopes, bund is created by boulder and morrum to arrest outflow.</p> <p>Plantation is done at susceptible portions to prevent soil erosion. The same practice will continue in future.</p> <p>It may be noted that as mentioned earlier there is no chance of intersection of ground water table during mining operation at present and in future also.</p>

(xii)	<p>Regular monitoring of ground water level and quality should be carried out in and around the mine lease 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 i.e. January, April-May, August, November and the data thus collected may be sent regularly to Ministry of Environment and Forests, its Regional Office, Bhubaneswar; Central Ground Water Authority and Central Ground Water Board.</p>	<p>Ground water table is at a depth of 90-120 mts.</p> <p>We are not using ground water for any mining purpose. There is no chance of intersection ground water table during mining operation at present and in future also as the total mining depth is restricted up to approximately 25m. However, Piezometer has been installed at Bhusar mine to regular monitor the ground water level.</p> <p>Drinking water quality report is attached as Annexure-1.</p>
(xiii)	<p>The project authorities should obtain prior approval of the competent authority for drawl of groundwater if any, required for the project.</p>	<p>Suitable arrangement for collection of water in rain water harvesting pond is in practice.</p> <p>Water is drawn from rain water harvesting pond being used for sprinkling on haul roads and for raising plantation.</p> <p>We are not using any ground water for mining purposes.</p> <p>Online application for extraction of ground water has already been submitted to CGWA/CGWB for drinking purpose only and awaiting for approval.</p>
(xiv)	<p>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</p>	<p>Regular maintenance of vehicles and all measures are being undertaken to minimize vehicular emission.</p> <p>Bauxite is transported through ropeway from mine to Lohardaga siding.</p>

	tarpaulin and shall not be overloaded.	
(xv)	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	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 taken to mitigate impact of blasting.
(xvi)	Drills shall either be operated with dust extractors or equipped with water injection system.	Wet drilling is being done in holes for dust suppression.
(xvii)	Consent to operate should be obtained from SPCB before starting/enhanced production from the mine.	Consent to operate has been obtained. Current CTO is valid up to Sept'2021.
(xviii)	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Progressive mine closure plan along with mining scheme has been approved by IBM. Final mine closure plan will be prepared in due time. Based on present resource estimate, and peak rated production capacity mentioned in EC, tentative balance life is around 6 years. However, after completion of further detailed exploration, resources estimate vis-à-vis balance life of the mine may change based on final resource estimate, EC capacity and cut-off grade at that point of time.

SI No	General Condition	Compliance
(i)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.	Being adhered to.
(ii)	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Bauxite production is within the limit specified in EC. Excavation & bauxite production are in line with calendar plan. Report is attached as Annexure-4.
(iii)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer	The system is already in place. Air quality monitoring report is being submitted

	zone for PM10, SO2 as 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.	regularly at JSPCB and MoEF&CC.
(iv)	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Suitable water spraying system is already available. To arrest fugitive dust proper water sprinkling is being carried out on haul roads, loading and unloading and at transfer points.
(v)	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Noise monitoring is being done regularly. Workers engaged in operation of HEMMs, etc. has also been provided with PPEs such as ear plugs and ear muffs. Monitoring of noise level is being conducted at various locations of the work zone area.
(vi)	Industrial wastewater (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 03 or as amended from time to time. Oil and grease trap should be installed before discharge of effluents from workshop.	There is no industrial waste water. Oil and grease trap installed at suitable site.
(vii)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	Workers engaged in operation of HEMMs, etc. has been provided with PPEs such as ear plugs and ear muffs. Monitoring of noise level is being conducted at various locations of work zone area. Training is being provided through group vocational training Centre on safety and health aspects.
(viii)	Occupational health surveillance programme of the workers should	Being carried out.

	be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	
(ix)	A separate environmental management cell with suitable qualified personnel should be set up under the control of a senior Executive, who will report directly to the Head of the organization.	Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy enclosed as Annexure-3.
(x)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purposes. Year-wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar	Year wise expenditure is being reported to the Ministry and its Regional Office located at Ranchi. Copy enclosed as Annexure-2.
(xi)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities should extend full cooperation to the officer(s) of the Regional Office by furnishing requisite data/information/monitoring reports.	Agreed. Now Regional office is at Ranchi.
(xii)	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 Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.	Six monthly reports on status of compliance of stipulated environmental clearance conditions including results of monitored data (by e mail) are being submitted to the Ministry of Environment and Forests, its Regional office Ranchi, the respective Zonal office of Central Pollution Control Board, the State Pollution Control Board and uploaded in company's website.
(xiii)	A copy of the clearance letter will be marked to the concerned Panchayat/local NGO, if any, from whom suggestions/representation has been received while processing the proposal.	A copy of clearance letter has been sent to concerned Panchayat, Zila Parisad / Municipal corporation, urban local body and the local NGO.
(xiv)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned	It is an operational mine. Hence provisional related to financial closure is not applicable.

	authorities and the date of start of land development work.	
(xv)	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's/Tehsildar's Office for 30 days.	Displayed.
(xvi)	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the Clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.	Complied. Copies of relevant paper cutting are submitted earlier.



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

BHUSAR BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

APRIL 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Branch Office:

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

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CONTENT

LOCATION - BHUSAR BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near View Point 1 (Bhusar Mine Pit I)
2	Near View Point 2 (Bhusar Mine Pit II)
3	Near Rest Shelter
4	Near GTS Point
EFFLUENT WATER ANALYSIS	
1	STP Outlet (Bagru Mines)
STACK EMISSION MONITORING OF DG SET (FLUE GAS)	
1	Bagru Mines Office-Bagru Plateau





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Hindalco Industries : Bhusar

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0320/2019-20	Date: 31 st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near View Point 1 (Bhusar Mine Pit I)	
Sample collected on: 08.04.2019	

LOCATION / IDENTIFICATION: Near View Point 1 (Bhusar Mine Pit I)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	63
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.8
05.	Ammonia (NH ₃)	µg/m ³	400	6.1
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.28
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0321/2019-20	Date: 31 st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near View Point 2 (Bhusar Mine Pit II)	
Sample collected on: 08.04.2019	

LOCATION / IDENTIFICATION: Near View point 2 (Bhusar Mine Pit II)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	69.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	6.9
06.	Ozone (O ₃)	µg/m ³	180	11.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.32
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0322/2019-20	Date: 31 st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Rest Shelter	
Sample collected on: 08.04.2019	

LOCATION / IDENTIFICATION: Near Rest Shelter				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	64
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0323/2019-20	Date: 31 st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near GTS Point	
Sample collected on: 08.04.2019	

LOCATION / IDENTIFICATION: Near GTS Point				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.3
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	10.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.2
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0318/2019-20			Date: 31st May, 2019		
Sample described by customer: STP Outlet (Bagru Mines)					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: STP Outlet (Bagru Mines)					
Quantity: 4 liters.					
Sample collected on: 06.04.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	8.5	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	71	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	8.9	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	37	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1510	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	8.4	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
10.	Temperature		31.2	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0319/2019-20			Date: 31st May, 2019	
Sample described as: FLUE GAS				
Name of the Industry: M/S HINDALCO INDUSTRIES LIMITED				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835302				
Date & time of Sampling: 06.04.2019				
Sampling Site: Bagru Mines Office				
A. General Information about Stack <ul style="list-style-type: none"> Stack connected to: DG-Set (250 KVA) Emission due to Burning of H.S.D Material OF construction: M.S Shape of Stack: Circular Whether stack is provided with permanent platform & ladder: Yes Capacity. 250 KVA 				
B. Physical characteristics of stack <ul style="list-style-type: none"> Height of the stack (a) from ground level: 7.0 m Diameter of the Stack at Sampling point: 0.2030m Height of the sampling point from GL. 6.25m 				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none"> Fuel used: H.S.D Fuel Consumption: 30 lt/hr 				
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)	295	---
2.	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	750	---
3.	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	7.58	---
4.	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	457	---
5.	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	3.3	5.0
6.	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.79	--
7.	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	72.5	--
8.	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.18	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.20	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





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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

Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0314/2019-20	Date: 31 st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near Daldaliya Village	
Sample collected on: 06.04.2019	

LOCATION / IDENTIFICATION: Near Daldaliya Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	21.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	3.5
06.	Ozone (O ₃)	µg/m ³	180	9.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.1
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0315/2019-20	Date: 31 st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Aditya School Gangupara	
Sample collected on: 06.04.2019	

LOCATION / IDENTIFICATION: Aditya School Gangupara

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	47
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	20
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.9
05.	Ammonia (NH ₃)	µg/m ³	400	3.5
06.	Ozone (O ₃)	µg/m ³	180	8.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0316/2019-20	Date: 31 st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Ropeway Unloading Station	
Sample collected on: 06.04.2019	

LOCATION / IDENTIFICATION: Ropeway Unloading Station				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	54
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.3
05.	Ammonia (NH ₃)	µg/m ³	400	4.6
06.	Ozone (O ₃)	µg/m ³	180	10.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

April 2019

Report No: MEEPL/MAY0317/2019-20

Date: 31st May, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Ropeway Angle Station**

Sample collected on: 06.04.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.5
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	9.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.26
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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

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

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

Mahabal Enviro Engineers Pvt. Ltd.

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

BHUSAR BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

MAY 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

LOCATION - BHUSAR BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near View Point 1 (Bhusar Mine Pit I)
2	Near View Point 2 (Bhusar Mine Pit II)
3	Near Rest Shelter
4	Near GTS Point
EFFLUENT WATER ANALYSIS	
1	STP Outlet (Bagru Mines)
STACK EMISSION MONITORING OF DG SET (FLUE GAS)	
1	Bagru Mines Office-Bagru Plateau





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0310/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near View Point 1 (Bhusar Mine Pit I)	
Sample collected on: 06.05.2019	

LOCATION / IDENTIFICATION: Near View Point 1 (Bhusar Mine Pit I)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	63
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.8
05.	Ammonia (NH ₃)	µg/m ³	400	6.1
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.28
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0311/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near View Point 2 (Bhusar Mine Pit II)	
Sample collected on: 06.05.2019	

LOCATION / IDENTIFICATION: Near View point 2 (Bhusar Mine Pit II)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	69.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	6.9
06.	Ozone (O ₃)	µg/m ³	180	11.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.32
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0312/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Rest Shelter	
Sample collected on: 06.05.2019	

LOCATION / IDENTIFICATION: Near Rest Shelter				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	64
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	10.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0313/2019-20

Date: 28th June, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Near GTS Point**

Sample collected on: 06.05.2019

LOCATION / IDENTIFICATION: Near GTS Point

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.3
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	10.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.2
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0308/2019-20			Date: 28th June, 2019		
Sample described by customer: STP Outlet (Bagru Mines)					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: STP Outlet (Bagru Mines)					
Quantity: 4 liters.					
Sample collected on: 04.05.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	8.5	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	66	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	8.8	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	35	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1572	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	8.2	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
10.	Temperature		32.4	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0309/2019-20			Date: 28th June, 2019	
Sample described as: FLUE GAS				
Name of the Industry: M/S HINDALCO INDUSTRIES LIMITED				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835302				
Date & time of Sampling: 04.05.2019				
Sampling Site: Bagru Mines Office				
A. General Information about Stack <ul style="list-style-type: none"> Stack connected to: DG-Set (250 KVA) Emission due to Burning of H.S.D Material OF construction: M.S Shape of Stack: Circular Whether stack is provided with permanent platform & ladder: Yes Capacity. 250 KVA 				
B. Physical characteristics of stack <ul style="list-style-type: none"> Height of the stack (a) from ground level: 7.0 m Diameter of the Stack at Sampling point: 0.2030m Height of the sampling point from GL. 6.25m 				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none"> Fuel used: H.S.D Fuel Consumption: 30 lt/hr 				
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)	291	---
2.	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	750	---
3.	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	7.45	---
4.	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	452	---
5.	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	3.6	5.0
6.	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.81	--
7.	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	77.2	--
8.	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.15	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.18	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 : Bagru

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0304/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near Daldaliya Village	
Sample collected on: 04.05.2019	

LOCATION / IDENTIFICATION: Near Daldaliya Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	57.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	24.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.5
05.	Ammonia (NH ₃)	µg/m ³	400	3.0
06.	Ozone (O ₃)	µg/m ³	180	8.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.3
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bagru

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0305/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Aditya School Gangupara	
Sample collected on: 04.05.2019	

LOCATION / IDENTIFICATION: Aditya School Gangupara

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	51.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.2
05.	Ammonia (NH ₃)	µg/m ³	400	2.5
06.	Ozone (O ₃)	µg/m ³	180	8.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.21
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	1.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bagru

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0306/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Ropeway Unloading Station	
Sample collected on: 04.05.2019	

LOCATION / IDENTIFICATION: Ropeway Unloading Station				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	60.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	27.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.1
05.	Ammonia (NH ₃)	µg/m ³	400	4.9
06.	Ozone (O ₃)	µg/m ³	180	10.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.26
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.3
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bagru

Environmental Monitoring Report

MAY 2019

Report no: MEEPL/JUNE0307/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Ropeway Angle Station	
Sample collected on: 04.05.2019	

LOCATION / IDENTIFICATION: Ropeway Angle Station				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	53.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.0
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	9.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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

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

Mahabal Enviro Engineers Pvt. Ltd.

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BHUSAR BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

JUNE 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

LOCATION - BHUSAR BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near View Point 1 (Bhusar Mine Pit I)
2	Near View Point 2 (Bhusar Mine Pit II)
3	Near Rest Shelter
4	Near GTS Point
EFFLUENT WATER ANALYSIS	
1	STP Outlet (Bagru Mines)
STACK EMISSION MONITORING OF DG SET (FLUE GAS)	
1	Bagru Mines Office-Bagru Plateau





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Hindalco Industries : Bhusar

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0217/2019-20	Date: 15 th July, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near View Point 1 (Bhusar Mine Pit I)	
Sample collected on: 06.06.2019	

LOCATION / IDENTIFICATION: Near View Point 1 (Bhusar Mine Pit I)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.1
05.	Ammonia (NH ₃)	µg/m ³	400	6.1
06.	Ozone (O ₃)	µg/m ³	180	8.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	1.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0218/2019-20	Date: 15 th July, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near View Point 2 (Bhusar Mine Pit II)	
Sample collected on: 06.06.2019	

LOCATION / IDENTIFICATION: Near View point 2 (Bhusar Mine Pit II)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	62.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.0
05.	Ammonia (NH ₃)	µg/m ³	400	6.2
06.	Ozone (O ₃)	µg/m ³	180	10.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.30
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0219/2019-20	Date: 15 th July, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Rest Shelter	
Sample collected on: 06.06.2019	

LOCATION / IDENTIFICATION: Near Rest Shelter				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	68.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	4.9
06.	Ozone (O ₃)	µg/m ³	180	9.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.28
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0220/2019-20

Date: 15th July, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Near GTS Point**

Sample collected on: 06.06.2019

LOCATION / IDENTIFICATION: Near GTS Point

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	72.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	10.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0221/2019-20			Date: 15th July, 2019		
Sample described by customer: STP Outlet (Bagru Mines)					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: STP Outlet (Bagru Mines)					
Quantity: 4 liters.					
Sample collected on: 06.06.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	8.5	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	69	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	8.6	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	37	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1495	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	8.0	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
10.	Temperature		32.8	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JULY0222/2019-20			Date: 15th July, 2019	
Sample described as: FLUE GAS				
Name of the Industry: M/S HINDALCO INDUSTRIES LIMITED				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835302				
Date & time of Sampling: 06.06.2019				
Sampling Site: Bagru Mines Office				
A. General Information about Stack <ul style="list-style-type: none"> Stack connected to: DG-Set (250 KVA) Emission due to Burning of H.S.D Material OF construction: M.S Shape of Stack: Circular Whether stack is provided with permanent platform & ladder: Yes Capacity. 250 KVA 				
B. Physical characteristics of stack <ul style="list-style-type: none"> Height of the stack (a) from ground level: 7.0 m Diameter of the Stack at Sampling point: 0.2030m Height of the sampling point from GL. 6.25m 				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none"> Fuel used: H.S.D Fuel Consumption: 30 lt/hr 				
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)	298	---
2.	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	750	---
3.	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	7.53	---
4.	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	452	---
5.	Concentration of CO ₂ (% 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)	0.83	--
7.	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	74.5	--
8.	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.15	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.18	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.

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Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JUNE0304/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near Daldaliya Village	
Sample collected on: 05.06.2019	

LOCATION / IDENTIFICATION: Near Daldaliya Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	52.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	22.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	2.8
06.	Ozone (O ₃)	µg/m ³	180	8.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.23
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.3
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.6
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JUNE0305/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Aditya School Gangupara	
Sample collected on: 05.06.2019	

LOCATION / IDENTIFICATION: Aditya School Gangupara

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	57.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	24.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.2
05.	Ammonia (NH ₃)	µg/m ³	400	2.1
06.	Ozone (O ₃)	µg/m ³	180	8.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.21
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	1.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JUNE0306/2019-20	Date: 28 th June, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Ropeway Unloading Station	
Sample collected on: 05.06.2019	

LOCATION / IDENTIFICATION: Ropeway Unloading Station				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	54.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.3
05.	Ammonia (NH ₃)	µg/m ³	400	4.0
06.	Ozone (O ₃)	µg/m ³	180	9.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.23
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.3
10.	Arsenic (As)	ng/m ³	06	1.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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

Hindalco Industries : Bagru

Environmental Monitoring Report

JUNE 2019

Report no: MEEPL/JUNE0307/2019-20

Date: 28th June, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Ropeway Angle Station**

Sample collected on: 05.06.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.7
05.	Ammonia (NH ₃)	µg/m ³	400	3.2
06.	Ozone (O ₃)	µg/m ³	180	8.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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

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

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

Mahabal Enviro Engineers Pvt. Ltd.

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

BHUSAR BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

JULY 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

LOCATION - BHUSAR BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near View Point 1 (Bhusar Mine Pit I)
2	Near View Point 2 (Bhusar Mine Pit II)
3	Near Rest Shelter
4	Near GTS Point
EFFLUENT WATER ANALYSIS	
1	STP Outlet (Bagru Mines)
STACK EMISSION MONITORING OF DG SET (FLUE GAS)	
1	Bagru Mines Office-Bagru Plateau
SURFACE WATER	
	Bhusar Bauxite Mine
AMBIENT NOISE MONITORING	
	Bhusar Bauxite Mine
Runoff Water	
	Bhusar Bauxite Mine





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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0134/2019-20	Date: 12 th August, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near View Point 1 (Bhusar Mine Pit I)	
Sample collected on: 04.07.2019	

LOCATION / IDENTIFICATION: Near View Point 1 (Bhusar Mine Pit I)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	52.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	6.0
06.	Ozone (O ₃)	µg/m ³	180	4.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.26
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.3
10.	Arsenic (As)	ng/m ³	06	1.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0135/2019-20	Date: 12 th August, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near View Point 2 (Bhusar Mine Pit II)	
Sample collected on: 04.07.2019	

LOCATION / IDENTIFICATION: Near View point 2 (Bhusar Mine Pit II)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	57.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.8
05.	Ammonia (NH ₃)	µg/m ³	400	5.3
06.	Ozone (O ₃)	µg/m ³	180	6.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.30
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.6
10.	Arsenic (As)	ng/m ³	06	1.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0136/2019-20	Date: 12 th August, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Rest Shelter	
Sample collected on: 04.07.2019	

LOCATION / IDENTIFICATION: Near Rest Shelter				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	54.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	26.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.6
05.	Ammonia (NH ₃)	µg/m ³	400	4.2
06.	Ozone (O ₃)	µg/m ³	180	5.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.26
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.7
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0137/2019-20

Date: 12th August, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Near GTS Point**

Sample collected on: 04.07.2019

LOCATION / IDENTIFICATION: Near GTS Point

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.5
05.	Ammonia (NH ₃)	µg/m ³	400	4.9
06.	Ozone (O ₃)	µg/m ³	180	6.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0138/2019-20			Date: 12th August, 2019		
Sample described by customer: STP Outlet (Bagru Mines)					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: STP Outlet (Bagru Mines)					
Quantity: 4 liters.					
Sample collected on: 04.07.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	8.3	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	62	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	7.5	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	32	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1283	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	7.6	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
10.	Temperature		33.0	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0139/2019-20			Date: 12th August, 2019	
Sample described as: FLUE GAS				
Name of the Industry: M/S HINDALCO INDUSTRIES LIMITED				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835302				
Date & time of Sampling: 04.07.2019				
Sampling Site: Bagru Mines Office				
A. General Information about Stack <ul style="list-style-type: none"> Stack connected to: DG-Set (250 KVA) Emission due to Burning of H.S.D Material OF construction: M.S Shape of Stack: Circular Whether stack is provided with permanent platform & ladder: Yes Capacity. 250 KVA 				
B. Physical characteristics of stack <ul style="list-style-type: none"> Height of the stack (a) from ground level: 7.0 m Diameter of the Stack at Sampling point: 0.2030m Height of the sampling point from GL. 6.25m 				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none"> Fuel used: H.S.D Fuel Consumption: 30 lt/hr 				
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)	290	---
2.	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	752.4	---
3.	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	7.62	---
4.	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	465	---
5.	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	3.2	5.0
6.	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.86	--
7.	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	77.1	--
8.	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.19	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.18	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.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0140/2019-20	Date: 12th August, 2019
Sample described by customer : SURFACE WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: SURFACE WATER	
Marks on Sample: Location: Bhusar Bauxite Mine	
Sample collected on: 04.07.2018	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.31	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.4	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	337	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	39	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	42	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	34	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
11	Sulphate (as SO ₄)	mg/l	31.5	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.16	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.0	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84





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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Continuation Sheet MEEPL/AUG0141/2019-20

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.10	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	6.3	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.06	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7-8	APHA 20 th ED. Method 4500-o g.

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0141/2019-20	Date: 12 th August, 2019
Sample described by customer : Measurement of Noise	
Client Name : Hindalco Industries Limited	
Client Address : Lohardaga	
Postal Code : 835203	
State : Jharkhand	
Country : India	
Sample Description : Measurement of Noise	
Sampling Method : Instrumental, using Sound level Metter	
Data Collection Date: 04.07.2019	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Bhusar Bauxite Mines	dB (A) L_{eq}	75	69.2	70	55.6

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0142/2019-20			Date: 12th August, 2019		
Sample described by customer: Runoff Water					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Runoff Water – Surface Water					
Marks on Sample: Location: Runoff Water - Bhusar Bauxite Mines					
Quantity: 4 liters.					
Sample collected on: 04.07.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	7.9	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	77	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	5.3	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	28	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1740	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	8.0	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
10.	Temperature		31.5	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0129/2019-20	Date: 12 th August, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near Daldaliya Village	
Sample collected on: 03.07.2019	

LOCATION / IDENTIFICATION: Near Daldaliya Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	38.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	18.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.9
05.	Ammonia (NH ₃)	µg/m ³	400	2.5
06.	Ozone (O ₃)	µg/m ³	180	5.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.21
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	1.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.6
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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 E-mail: mahabalanranchi@gmail.com

Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0130/2019-20	Date: 12 th August, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Aditya School Gangupara	
Sample collected on: 03.07.2019	

LOCATION / IDENTIFICATION: Aditya School Gangupara

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	42.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	20.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	2.3
06.	Ozone (O ₃)	µg/m ³	180	5.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	0.72
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0131/2019-20	Date: 12 th August, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Ropeway Unloading Station	
Sample collected on: 03.07.2019	

LOCATION / IDENTIFICATION: Ropeway Unloading Station				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	46.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	21.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.5
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	6.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	1.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bagru

Environmental Monitoring Report

JULY 2019

Report no: MEEPL/AUG0132/2019-20

Date: 12th August, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Ropeway Angle Station**

Sample collected on: 03.07.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	40.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	19.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.8
05.	Ammonia (NH ₃)	µg/m ³	400	3.2
06.	Ozone (O ₃)	µg/m ³	180	6.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.3
10.	Arsenic (As)	ng/m ³	06	2.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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

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

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

Mahabal Enviro Engineers Pvt. Ltd.

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

BHUSAR BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

AUGUST 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

LOCATION - BHUSAR BAUXITE MINE	
AMBIENT AIR QUALITY - CORE ZONE	
1	Near View Point 1 (Bhusar Mine Pit I)
2	Near View Point 2 (Bhusar Mine Pit II)
3	Near Rest Shelter
4	Near GTS Point
EFFLUENT WATER ANALYSIS	
1	STP Outlet (Bagru Mines)
STACK EMISSION MONITORING OF DG SET (FLUE GAS)	
1	Bagru Mines Office-Bagru Plateau





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Hindalco Industries : Bhusar

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0168/2019-20	Date: 14 th September, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near View Point 1 (Bhusar Mine Pit I)	
Sample collected on: 06.08.2019	

LOCATION / IDENTIFICATION: Near View Point 1 (Bhusar Mine Pit I)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	16.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	9.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.4
05.	Ammonia (NH ₃)	µg/m ³	400	0.9
06.	Ozone (O ₃)	µg/m ³	180	4.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.08
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.6
10.	Arsenic (As)	ng/m ³	06	1.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0169/2019-20	Date: 14 th September, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near View Point 2 (Bhusar Mine Pit II)	
Sample collected on: 06.08.2019	

LOCATION / IDENTIFICATION: Near View point 2 (Bhusar Mine Pit II)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	19.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	11.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.6
05.	Ammonia (NH ₃)	µg/m ³	400	1.5
06.	Ozone (O ₃)	µg/m ³	180	6.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.10
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	1.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.15

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0170/2019-20	Date: 14 th September, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Rest Shelter	
Sample collected on: 06.08.2019	

LOCATION / IDENTIFICATION: Near Rest Shelter				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	17.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	8.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.9
05.	Ammonia (NH ₃)	µg/m ³	400	2.0
06.	Ozone (O ₃)	µg/m ³	180	8.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.07
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.7
10.	Arsenic (As)	ng/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0171/2019-20

Date: 14th September, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Near GTS Point**

Sample collected on: 06.08.2019

LOCATION / IDENTIFICATION: Near GTS Point

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	20.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	13.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.5
05.	Ammonia (NH ₃)	µg/m ³	400	2.0
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.11
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.0
10.	Arsenic (As)	ng/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.6
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0172/2019-20			Date: 14th September, 2019		
Sample described by customer: STP Outlet (Bagru Mines)					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: STP Outlet (Bagru Mines)					
Quantity: 4 liters.					
Sample collected on: 06.08.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	7.1	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	77	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	6.1	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	24	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1622	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.2	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	8.5	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.0	mg/l	3
10.	Temperature		30.3	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0173/2019-20			Date: 14th September, 2019	
Sample described as: FLUE GAS				
Name of the Industry: M/S HINDALCO INDUSTRIES LIMITED				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835302				
Date & time of Sampling: 06.08.2019				
Sampling Site: Bagru Mines Office				
A. General Information about Stack <ul style="list-style-type: none"> Stack connected to: DG-Set (250 KVA) Emission due to Burning of H.S.D Material OF construction: M.S Shape of Stack: Circular Whether stack is provided with permanent platform & ladder: Yes Capacity. 250 KVA 				
B. Physical characteristics of stack <ul style="list-style-type: none"> Height of the stack (a) from ground level: 7.0 m Diameter of the Stack at Sampling point: 0.2030m Height of the sampling point from GL. 6.25m 				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none"> Fuel used: H.S.D Fuel Consumption: 30 lt/hr 				
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)	295	---
2.	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	750	---
3.	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	7.57	---
4.	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	457	---
5.	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	3.4	5.0
6.	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.71	--
7.	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	72.9	--
8.	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.18	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.20	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.

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Hindalco Industries : Bagru

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0164/2019-20	Date: 14 th September, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Near Daldaliya Village	
Sample collected on: 05.08.2019	

LOCATION / IDENTIFICATION: Near Daldaliya Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	17.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	9.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	0.8
05.	Ammonia (NH ₃)	µg/m ³	400	1.3
06.	Ozone (O ₃)	µg/m ³	180	6.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.06
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.4
10.	Arsenic (As)	ng/m ³	06	1.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.09

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bagru

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0165/2019-20	Date: 14 th September, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Aditya School Gangupara	
Sample collected on: 05.08.2019	

LOCATION / IDENTIFICATION: Aditya School Gangupara

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	14.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	7.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.6
05.	Ammonia (NH ₃)	µg/m ³	400	3.2
06.	Ozone (O ₃)	µg/m ³	180	9.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.08
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.3
10.	Arsenic (As)	ng/m ³	06	1.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.2

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bagru

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0166/2019-20	Date: 14 th September, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Ropeway Unloading Station	
Sample collected on: 05.08.2019	

LOCATION / IDENTIFICATION: Ropeway Unloading Station				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	22.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	19.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.1
05.	Ammonia (NH ₃)	µg/m ³	400	1.9
06.	Ozone (O ₃)	µg/m ³	180	7.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.15
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	1.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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E-mail: mahabalaranchi@gmail.com

Hindalco Industries : Bagru

Environmental Monitoring Report

AUGUST 2019

Report no: MEEPL/SEP0167/2019-20

Date: 14th September, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Ropeway Angle Station**

Sample collected on: 05.08.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	20.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	13.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.7
05.	Ammonia (NH ₃)	µg/m ³	400	3.0
06.	Ozone (O ₃)	µg/m ³	180	7.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.13
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	1.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.13

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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

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

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

Mahabal Enviro Engineers Pvt. Ltd.

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

BHUSAR BAUXITE MINE - ENVIRONMENTAL MONITORING REPORT

SEPTEMBER 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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CONTENT

LOCATION – BHUSAR BAUXITE MINE	
AMBIENT AIR QUALITY – CORE ZONE	
1	Near View Point 1 (Bhusar Mine Pit I)
2	Near View Point 2 (Bhusar Mine Pit II)
3	Near Rest Shelter
4	Near GTS Point
EFFLUENT WATER ANALYSIS	
1	STP Outlet (Bagru Mines)
STACK EMISSION MONITORING OF DG SET (FLUE GAS)	
1	Bagru Mines Office-Bagru Plateau





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0121/2019-20

Date: 18th October, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample Location: Near View Point 1 (Bhusar Mine Pit I)

Sample collected on: 05.09.2019

LOCATION / IDENTIFICATION: Near View Point 1 (Bhusar Mine Pit I)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	28.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	16.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.3
05.	Ammonia (NH ₃)	µg/m ³	400	5.1
06.	Ozone (O ₃)	µg/m ³	180	6.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.18
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	1.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0122/2019-20	Date: 18 th October, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near View Point 2 (Bhusar Mine Pit II)	
Sample collected on: 05.09.2019	

LOCATION / IDENTIFICATION: Near View point 2 (Bhusar Mine Pit II)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	33.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	18.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.9
05.	Ammonia (NH ₃)	µg/m ³	400	6.0
06.	Ozone (O ₃)	µg/m ³	180	7.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.20
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	1.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0123/2019-20

Date: 18th October, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Near Rest Shelter

Sample collected on: 05.09.2019

LOCATION / IDENTIFICATION: Near Rest Shelter

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	24.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.7
05.	Ammonia (NH ₃)	µg/m ³	400	4.6
06.	Ozone (O ₃)	µg/m ³	180	5.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.12
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	0.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.14

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0124/2019-20

Date: 18th October, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Near GTS Point**

Sample collected on: 05.09.2019

LOCATION / IDENTIFICATION: Near GTS Point

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	36.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	13.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.8
05.	Ammonia (NH ₃)	µg/m ³	400	6.1
06.	Ozone (O ₃)	µg/m ³	180	7.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.15
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.6
10.	Arsenic (As)	ng/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0125/2019-20			Date: 18th October, 2019		
Sample described by customer: STP Outlet (Bagru Mines)					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: STP Outlet (Bagru Mines)					
Quantity: 4 liters.					
Sample collected on: 05.09.2019					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	7.9	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	61	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	9.3	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	42	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003,Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1368	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	0.9	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	8.7	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.1	mg/l	3
10.	Temperature		29.4	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0126/2019-20		Date: 18th October, 2019		
Sample described as: FLUE GAS				
Name of the Industry: M/S HINDALCO INDUSTRIES LIMITED				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835302				
Date & time of Sampling: 05.09.2019				
Sampling Site: Bagru Mines Office				
A. General Information about Stack <ul style="list-style-type: none"> Stack connected to: DG-Set (250 KVA) Emission due to Burning of H.S.D Material OF construction: M.S Shape of Stack: Circular Whether stack is provided with permanent platform & ladder: Yes Capacity. 250 KVA 				
B. Physical characteristics of stack <ul style="list-style-type: none"> Height of the stack (a) from ground level: 7.0 m Diameter of the Stack at Sampling point: 0.2030m Height of the sampling point from GL. 6.25m 				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none"> Fuel used: H.S.D Fuel Consumption: 30 lt/hr 				
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)	297	---
2.	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	750	---
3.	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	7.68	---
4.	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	461	---
5.	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	3.3	5.0
6.	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.85	--
7.	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	76.9	--
8.	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.19	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.19	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.

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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0115/2019-20

Date: 18th October, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample Location: Near Daldaliya Village

Sample collected on: 04.09.2019

LOCATION / IDENTIFICATION: Near Daldaliya Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	19.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	10.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.0
05.	Ammonia (NH ₃)	µg/m ³	400	4.2
06.	Ozone (O ₃)	µg/m ³	180	5.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.06
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.2
10.	Arsenic (As)	ng/m ³	06	0.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0116/2019-20	Date: 18 th October, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Aditya School Gangupara	
Sample collected on: 04.09.2019	

LOCATION / IDENTIFICATION: Aditya School Gangupara

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	16.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	9.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	1.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.3
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	6.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.05
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	1.0
10.	Arsenic (As)	ng/m ³	06	0.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.12

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0117/2019-20

Date: 18th October, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample type: AMBIENT AIR QUALITY MONITORING

Marks on Sample: Location: Ropeway Unloading Station

Sample collected on: 04.09.2019

LOCATION / IDENTIFICATION: Ropeway Unloading Station

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	43.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	20.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.6
05.	Ammonia (NH ₃)	µg/m ³	400	5.1
06.	Ozone (O ₃)	µg/m ³	180	7.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.13
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.1
10.	Arsenic (As)	ng/m ³	06	1.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	0.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Bhusar

Environmental Monitoring Report

SEPTEMBER 2019

Reports no: MEEPL/OCT0118/2019-20

Date: 18th October, 2019

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: **AMBIENT AIR QUALITY MONITORING**

Marks on Sample: Location: **Ropeway Angle Station**

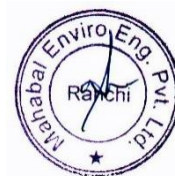
Sample collected on: 04.09.2019

LOCATION / IDENTIFICATION: Ropeway Angle Station

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	38.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	17.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.4
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	8.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.11
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.5
10.	Arsenic (As)	ng/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



Annexure-2

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

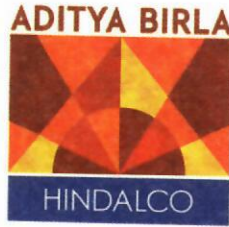
The composite cost during the year 2019-20 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar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

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

**Part of OB removed cost.



(Basudev Gangopadhyay)
Convenor (Quality & Environment)



Annexure - 3

Date: 10.01.19

Office Order

Environmental Cell has been re-constituted at Bhusar Bauxite Mines (Area 65.31 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. Gauri Shankar Prasad –Geologist (Coordinator)
2. Mr. Rupak Kumar Dubey (Dy. Engineer)
3. Mr. Anil Kumar singh (Mining Engineer)

Basudev Gangopadhyay
Convenor (Quality & Environment)

Annexure 4


Production, Mined Out, Back Filled and Over Burden removal from April'19 to September'19

S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	Mine is not in operation since November 2013.			
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	4895	0.07	0.00	77442.60
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	7972	0.06	0.00	11629.94
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	NIL	NIL	0.67	21974.96
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	NIL	NIL	1.20	53614.90
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	NIL	NIL	1.00	107763.230
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	153475	6.95	4.67	111211.184
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	147045	5.00	7.00	325000
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	NIL	NIL	NIL	NIL
10	Jalim&Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	28545	0.39	0.33	16000

Annexure 4

11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL	
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL	
13	Pakhhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL	
14	Pakhhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL	
15	Pakhhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	25000	0.35	0.58	72808.76	
Minerals & Minerals Limited									
16	Pakhhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	49800	0.4	0.20	48359.23	
17	Pakhhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	118700	1.00	2.04	162256	
18	Bimarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	87320	4.33	3.10	241367.05	

*Static information about the mines included in the above table


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