

Ref No: HIL/LHD/JP (M)/MoEF/ 094

Date: 23.05.2017

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 Bagru (75.41ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga District of Jharkhand for the period Oct'16 to March'17.

Ref: **Environmental Clearance letter no J-11015/585/2007-IA II (M) dated 18th Sept 2011**


Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bagru (75.41ha)** Bauxite Mining project of **M/s Hindalco Industries Limited**, located in Lohardaga District of Jharkhand for the period Oct'16 to March'17.

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR **M/s Hindalco Industries Limited**,


(Bijesh Kumar Jha)
Agent of Mines

Enclosure: - As Above

Copy to: Member Secretary, JSPCB, Ranchi
RO, JSPCB, Ranchi
CPCB, Zonal Office, Kolkata
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**Compliance of conditions laid down in Environmental Clearance
BAGRU BAUXITE MINES (75.41 Ha)
Period: Oct'16-March'17**

MoEF Environment Clearance ref. no. : J – 11015/585/2007 – IA.II (M) dated 04 Feb'2011

Sl No	Conditions	Compliance Status
Specific Conditions		
1	All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.	Implementations of the stipulated conditions are fulfilled.
2	The environmental clearance is subject to grant of forestry clearance for diversion of 19.56 ha forestland.	The process of Forest clearance, with due submission of the compensatory afforestation land is in process. The Mine is not in operation till above period due directives from DMO in respect second renewal case. Mining was not done in forest land in past.
3	The mining operation shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment & Forest and Central Ground Water Authority shall be obtained for which a detailed hydro-geological study shall be carried out.	Being complied in past. Mining is restricted to above ground water table in past. The Mine is not in operation for due directives from DMO in respect second renewal case.
4	The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations.	No natural water course and/or water resources was obstructed due to any mining operations in past.
5	Top soil should be temporarily stacked with proper slope at earmarked site(s) only with adequate measures and it should not be kept unutilized for a period of more than 3 years. The top soil shall be used for land reclamation and rehabilitation of mined out areas.	Sequential backfilling and reclamation of the mined out area were exercised when mine was operational. The Mine is not in operation due to second renewal case.
6	The entire waste generated shall be backfilled and there shall be no external over burden dump left at the end of the mine life. The entire backfilled area shall be reclaimed by plantation. The backfilling should be carried out in such a manner that it is restored to the normal ground level. Monitoring and	The Mine is not in operation for second renewal case. The compliance to this provision was being practiced when mine was in operation and the same

	management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest and its Regional Office, Bhubneshwar on six monthly basis.	will continued post resumption of mining operation. Around 7000 saplings have been planted during the FY2016-17 in the Bagru plateau.
7	The void left unfilled in an area of 1.76 ha shall be converted into water body. The higher benches of excavated void/mining pit shall be traced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.	The void left unfilled area converted into water body. The higher benches of excavated void/mining pit are traced and plantation was being done to stabilize the slopes which will continue in future post resumption of mining activity.
8	Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, and mineral dumps to arrest flow of silt and sediment directly into Chanpi Nallah, Sukri Nadi and others water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regulary desilted, particularly after monsoon, and maintained properly. Garland drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and flow sediments directly into Chanpi Nallah,Sukri Nadi and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall(based on 50 years date) and maximum discharge in the area adjoin 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.	No run off was generated from mining activities. However, to collect and manage rainwater during monsoon rains, Pit sumps were made, part of mined out area were used as settling tank. Settled water were used for sprinkling of quarry, roads, green belt development, etc when mine was operational. The Mine is not in operation till above period due directives from DMO in due to second renewal case. The compliance to this provision was being practiced when mine was in operation and the same will continued post resumption of mining operation.
9	Dimension of the retaining wall at the toe of sub grade dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.	The dimensions of the retaining wall of OB dumps are based on the average rain fall. The Mine is not in operation till above period due directives from DMO in due to second renewal case. The compliance to this provision was being

		practiced when mine was in operation and the same will continued post resumption of mining operation.
10	Plantation shall be raise in an area of 50.11 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture Department. At least 1500 trees per year shall be planted with a tree density of 1000 trees per hectare.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Plantation on Bagru plateau was carried out progressively. Around 7000 saplings have been planted during the FY2016-17 in the Bagru plateau.
11	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the AAQ parameters conform to the norms prescribed by the central Pollution Control Board in this regard.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Measured AAQ parameters reported within limit.
12	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.	System is already in place.
13	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF,its Regional Office,Bhubneshwar; Central Ground Water Authority and Central Ground Water Board.	This is being monitored in all season. (Annexure-1 &5)
14	The project authority shall obtain necessary prior approval of the competent authority for drawal of requisite quantity of water (surface water and ground water) for the project.	Rainwater harvested during rainy season was being used for sprinkling on haul roads and raising plantation. Water cess paid to State Pollution Control Board on monthly basis.

15	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Post resumption of Mining activity the provision set herewith will be complied.
16	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	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Post resumption of Mining activity the provision set herewith will be complied.
17	Drills should either be operated with dust extractors or should be equipped with water injection system	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Post resumption of Mining activity the provision set herewith will be complied.
18	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	The sewage water from domestic uses is collected and treated in Sewage Treatment Plant. No effluent is generated and hence, ETP is not required.
19	Consent to operate should be obtained from SPCB prior to start of production of mine.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. All procedure for getting the lease renewal has been done & very shortly mine will be operative post obtaining Consent to Operate and requisite clearances.
20	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project	System is already in place.
21	The critical parameters such as RSPM(Particulate matter with size less than 10micron (i.e., PM10, , PM2.5) and NOX in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closed	Being carried out. Monitoring report attached as annexure-1. The data being uploaded on company website regularly as required.

	shall be monitored periodically. Further, quantity of discharged water shall also be monitored [TDS,DO, PH and TSS}The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forest, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	
22	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. FMCP (part) also has been approved by IBM. Final Mine closure plan (FMCP) for total lease area will be prepared in due time.

GENERAL CONDITIONS

Sl No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Post resumption of Mining activity the provision set herewith will be complied.

2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	<p>The Mine is not in operation till above period due directives from DMO in due to second renewal case.</p> <p>Post resumption of Mining activity the provision set herewith will be complied.</p>
3	Conservation measures for protection of flora and fauna in the core and buffer zone should be drawn up in consultation with the local forest and wild life department.	<p>Suitable conservation measures was undertaken.</p> <p>The Mine is not in operation till above period due directives from DMO in due to second renewal case.</p> <p>Post resumption of Mining activity the provision set herewith will be complied.</p>
4	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , NO _x 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.	<p>Ambient air monitoring stations established and monitoring is being undertaken in consultation with State Pollution Control Board. Monitoring report annexed as Annexure-1.</p>
5	Data on ambient air quality (RPM, SPM, SO ₂ , NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	<p>Monitoring report annexed as Annexure-1.</p>
6	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.	<p>The Mine is not in operation till above period due directives from DMO in due to second renewal case.</p> <p>Post resumption of Mining activity the provision set herewith will be complied.</p>
7	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.	<p>The Mine is not in operation till above period due directives from DMO in due to second renewal case.</p> <p>Post resumption of Mining activity the provision set herewith will be complied.</p>

8	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Post resumption of Mining activity the provision set herewith will be complied.
9	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. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Post resumption of Mining activity the provision set herewith will be complied.
10	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization	Already formed and informed. Vide annexure-3.
11	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	The Mine is not in operation till above period due directives from DMO in due to second renewal case. Will be intimated in due time.
12	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Fund for environment protection is earmarked. (Vide Fund taken together for the mines division si attached herewith as Annexure-2 which includes Bagru Mine.).
13	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Being complied with.
14	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e mail) to the Ministry of Environment and Forests,	Six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e mail) are being submitted to the Ministry of Environment and Forests, its

	its Regional office Bhubaneshwar, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forest, Bhubaneshwar, the respective zonal office of Central Pollution Control Board and the State Pollution Control Board.	Regional office Ranchi, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board and uploaded in company's website.
15	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal corporation, urban local body and the local NGO, if any, from whom and suggestions / representations if any were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	A copy of clearance letter has been sent to concerned Panchayat, Zila Parisad / Municipal corporation, urban local body and the local NGO.
16	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	Displayed.
17	The environment statement for each financial year ending 31st March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.	Submitted.
18	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	Already done (Documents already submitted).

<p>Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.</p>	
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Mahabal Enviro Engineers Pvt. Ltd.

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

BAGRU PLATEAU- ENVIRONMENTAL MONITORING REPORT

JANUARY TO MARCH 2017

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. – MAR 2017

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Hindalco Industries : Environmental Monitoring Report

JAN. – MAR 2017

Report no: MEEPL/APRIL0118/2016-17	Date: 20th April, 2017
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: Entrance Gate Bagru Mines	
Sample collected on: 23.03.2017	

LOCATION / IDENTIFICATION: Entrance Gate Bagru Mines				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	33.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	9.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	14.9
05.	Ammonia (NH ₃)	µg/m ³	400	15.5
06.	Ozone (O ₃)	µg/m ³	180	14.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.40
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	3.9
10.	Arsenic (As)	ng/m ³	06	2.65
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.33

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Report no: MEEPL/APRIL0119/2016-17	Date: 20 th April, 2017
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: Bagru Plateau- Office (Near Colony)	
Sample collected on: 23.03.2017	

LOCATION / IDENTIFICATION: Bagru Plateau- Office (Near Colony)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	45.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	28.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	8.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	17.1
05.	Ammonia (NH ₃)	µg/m ³	400	15.1
06.	Ozone (O ₃)	µg/m ³	180	16.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.45
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	3.8
10.	Arsenic (As)	ng/m ³	06	2.50
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. – MAR 2017

Report no: MEEPL/APRIL0120/2016-17	Date: 20 th April, 2017
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Hisri Mines Pit Bagru Plateau	
Sample collected on: 23.03.2017	

LOCATION / IDENTIFICATION: Hisri Mines Pit Bagru Plateau				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	44.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	27.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	7.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	13.9
05.	Ammonia (NH ₃)	µg/m ³	400	15.2
06.	Ozone (O ₃)	µg/m ³	180	14.6
07.	Carbon Monoxide (CO)	mg/m ³	02	0.49
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	3.8
10.	Arsenic (As)	ng/m ³	06	2.70
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.26

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. – MAR 2017

Report no: MEEPL/APRIL0121/2016-17	Date: 20 th April, 2017
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: Bhusar Mines Pit Bagru Plateau	
Sample collected on: 23.03.2017	

LOCATION / IDENTIFICATION: Bhusar Mines Pit Bagru Plateau				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	55.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	9.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	16.1
05.	Ammonia (NH ₃)	µg/m ³	400	14.8
06.	Ozone (O ₃)	µg/m ³	180	16.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.41
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	3.5
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.38

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. – MAR 2017

Report no: MEEPL/APRIL0122/2016-17	Date: 20th April, 2017
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample Location: Hisri Mines Pit II	
Sample collected on: 23.03.2017	

LOCATION / IDENTIFICATION: Hisri Mines Pit – II				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	58.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	15.1
05.	Ammonia (NH ₃)	µg/m ³	400	14.7
06.	Ozone (O ₃)	µg/m ³	180	15.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.48
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	3.7
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Report no: MEEPL/APRIL0123/2016-17	Date: 20th April, 2017
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 Meter	
Data Collection Date: 23.03.2017	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Bagru Plateau Near Office	dB (A) L_{eq}	75	54.7	70	41.5	23.03.2017

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Report no: MEEPL/APRIL0124/2016-17	Date: 20 th April, 2017
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: 23.03.2017	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Bagru Plateau - Near Workshop	dB (A) Leq	75	47.7	70	40.9	23.03.2017

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. – MAR 2017

Report no: MEEPL/APRIL0125/2016-17	Date: 20th April, 2017
Sample described by customer: Measurement of Spot Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 23.03.2017	

Location/Identification	Unit	Limit (day)	Result	Dates
Bagru Plateau – Bagru Crusher site	dB (A) L _{eq}	75	65.4	23.03.2017

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. – MAR 2017

Report no: MEEPL/APRIL0126/2016-17	Date: 20 th April, 2017
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Bagru Plateau Near Office.	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 23.03.2017	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.2	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.2	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	1 max	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	75.8	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	44.6	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	58.8	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	7.1	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	6.3	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Continuation Sheet
MEEPL/APRIL0126/2016-17

Report no: MEEPL/APRIL0126/2016-17				Date: 20 th April, 2017	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO ₃)	mg/l	1.7	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.12	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.11	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	30	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.9	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.19	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4-175 & F 4-178





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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Continuation Sheet
MEEPL/APRIL0126/2016-17

Report no: MEEPL/APRIL0126/2016-17				Date: 20 th April, 2017	
S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9-76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Report no: MEEPL/APRIL0127/2016-17			Date: 20th April, 2017		
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: 23.03.2017					
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	30.2	mg/l	100
3	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	11.7	mg/l	30
4	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	35.1	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	87.5	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	6.9	mg/l	75
9	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.2	mg/l	3
10	Temperature		30.1	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Report no: MEEPL/APRIL0128/2016-17	Date: 20 th April, 2017
Sample described by customer : GROUND WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: GROUND WATER	
Marks on Sample: Location: Hisri Mines Pit	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 26.12.2016	

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	--	8.3	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	1 max	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	428	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	46	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	41	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	47	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
11	Sulphate (as SO ₄)	mg/l	32.9	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.20	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.1	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84



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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Continuation Sheet
MEEPL/APRIL0128/2016-17

Report no: MEEPL/APRIL0128/2016-17		Date: 20 th April, 2017			
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.13	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	9.5	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.08	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.

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Hindalco Industries : Environmental Monitoring Report

JAN. - MAR 2017

Report no: MEEPL/APRIL0129/2016-17		Date: 20th April, 2017		
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: 23.03.2017				
Sampling Site: Bagru Mines Office-Bagru Plateau				
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)	328	---
2	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	756	---
3	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	7.42	---
4	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	426	---
5	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	4.0	5.0
6	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.69	--
7	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	66.3	--
8	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.41	9.2
9	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.25	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





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

BAGRU PLATEAU- ENVIRONMENTAL MONITORING REPORT

OCTOBER TO DECEMBER 2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT – DEC 2016

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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no: : MEEPL/ JAN0145/2016-17	Date: 30 th January , 2017
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: Bagru Plateau- Office (Near Colony)	
Sample collected on: 26.12.2016	

LOCATION / IDENTIFICATION: Bagru Plateau- Office (Near Colony)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	40.2
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	23.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	34.5
05.	Ammonia (NH ₃)	µg/m ³	400	11.5
06.	Ozone (O ₃)	µg/m ³	180	18.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.69
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	7.9
10.	Arsenic (As)	ng/m ³	06	2.92
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no: : MEEPL/ JAN0146/2016-17	Date: 30 th January , 2017
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Hisri Mines Pit Bagru Plateau	
Sample collected on: 26.12.2016	

LOCATION / IDENTIFICATION: Hisri Mines Pit Bagru Plateau				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	49.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	36.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	27.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	29.8
05.	Ammonia (NH ₃)	µg/m ³	400	17.9
06.	Ozone (O ₃)	µg/m ³	180	16.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.68
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	9.2
10.	Arsenic (As)	ng/m ³	06	3.35
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.56
12.	Benzo (a) Pyrene	µg/m ³	01	0.42

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no: : MEEPL/ JAN0147/2016-17	Date: 30 th January , 2017
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: Bhusar Mines Pit Bagru Plateau	
Sample collected on: 26.12.2016	

LOCATION / IDENTIFICATION: Bhusar Mines Pit Bagru Plateau				
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	39.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	23.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	36.9
05.	Ammonia (NH ₃)	µg/m ³	400	16.9
06.	Ozone (O ₃)	µg/m ³	180	21.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.61
08.	Lead (Pb)	µg/m ³	1.0	0.028
09.	Nickel (Ni)	ng/m ³	20	7.2
10.	Arsenic (As)	ng/m ³	06	2.72
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.95
12.	Benzo (a) Pyrene	µg/m ³	01	0.45

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Hindalco Industries : Environmental Monitoring Report

OCT – DEC 2016

Report no. : MEEPL/ JAN0148/2016-17	Date: 30th January , 2017
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: Entrance Gate Bagru Mines	
Sample collected on: 26.12.2016	

LOCATION / IDENTIFICATION: Entrance Gate Bagru Mines				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	54.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	40.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	22.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	32.6
05.	Ammonia (NH ₃)	µg/m ³	400	21.5
06.	Ozone (O ₃)	µg/m ³	180	16.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.52
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	8.9
10.	Arsenic (As)	ng/m ³	06	2.82
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no: : MEEPL/ JAN0149/2016-17

Date: 30th January , 2017

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: AMBIENT AIR QUALITY MONITORING

Marks on Sample Location: Hisri Mines Pit II

Sample collected on: 26.12.2016

LOCATION / IDENTIFICATION: Hisri Mines Pit – II

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50.1
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	18.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	30.5
05.	Ammonia (NH ₃)	µg/m ³	400	18.5
06.	Ozone (O ₃)	µg/m ³	180	14.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.52
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	5.3
10.	Arsenic (As)	ng/m ³	06	2.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no. : MEEPL/ JAN0150/2016-17	Date: 30 th January , 2017
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 Meter	
Data Collection Date: 26.12.2016	
Analyse Date: 27.12.2016	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Bagru Plateau Near Office	dB (A) Leq	75	52.3	70	40.2	27.12.2016

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT – DEC 2016

Report no: : MEEPL/ JAN0151/2016-17	Date: 30th January , 2017
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: 26.12.2016	
Analyse Date: 27.12.2016	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Bagru Plateau – Near Workshop	dB (A) L_{eq}	75	42.1	70	39.8	26.12.2016

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no. : MEEPL/ JAN0152/2016-17	Date: 30th January , 2017
Sample described by customer: Measurement of Spot Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 26.12.2016	
Analyse Date: 27.12.2016	

Location/Identification	Unit	Limit (day)	Result	Dates
Bagru Plateau Bagru Crusher site	dB (A) L_{eq}	75	67.5	26.12.2017

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no. : MEEPL/ JAN0153/2016-17	Date: 30th January , 2017
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Bagru Plateau near office.	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on:26.12.2016	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.3	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.5	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-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	86.9	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	56.9	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	70.5	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	9.2	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	6.2	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Continuation Sheet
MEEPL/JAN0153/2016-17

Report no: : MEEPL/ JAN0153/2016-17				Date: 30 th January , 2017	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO ₃)	mg/l	1.2	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.17	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.13	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	36	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	4.5	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.19	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.0010	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4-175 & F 4-178

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Hindalco Industries : Environmental Monitoring Report

OCT – DEC 2016

Continuation Sheet
MEEPL/JAN0153/2016-17

Report no: : MEEPL/ JAN0153/2016-17				Date: 30 th January , 2017	
S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/ 100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/ 100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9- 76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

OCT – DEC 2016

Report no. : MEEPL/ JAN0154/2016-17			Date: 30th January , 2017		
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: 26.12.2016					
Sl. No.	Analysis	Method	Result	Unit	Limits
1	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	7.2	mg/l	5.5-9.0
2	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	32.5	mg/l	100
3	BOD @ 27 ^o C	IS 3025 (Part 44): 1993, RA2003, Amd.1	16.8	mg/l	30
4	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	42.5	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	92.5	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	7.10	mg/l	75
9	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	2.5	mg/l	3
10	Temperature		27.5	^o C	Shall not exceed 5 ^o C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

OCT – DEC 2016

Report no. : MEEPL/ JAN0155/2016-17	Date: 30 th January , 2017
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 Mines Pit	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 26.12.2016	

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	--	8.3	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	428	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	46	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	41	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	47	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
11	Sulphate (as SO ₄)	mg/l	32.9	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.20	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.1	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84



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Hindalco Industries : Environmental Monitoring Report

OCT – DEC 2016

Continuation Sheet
MEEPL/JAN0155/2016-17

Report no: : MEEPL/ JAN0155/2016-17		Date: 30 th January , 2017			
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.18	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	12.9	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.16	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	0.03	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	7.2	7-8	APHA 20 th ED. Method 4500-o g.

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Environmental Monitoring Report

OCT - DEC 2016

Report no. : MEEPL/ JAN0156/2016-17		Date: 30th January , 2017		
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: 26.12.2016				
Sampling Site: Bagru Mines Office-Bagru Plateau				
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)	330	---
2	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	752	---
3	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	8.2	---
4	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	458	---
5	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	3.9	5.0
6	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.32	--
7	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	63.5	--
8	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	1.20	9.2
9	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.25	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



BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2016-17

The composite cost during the year 2016-17 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud, Orsa pat(196.36 Ha), Bhusar (65.31 Ha)& Bimarla Bauxite Mines (134.52 Ha).

Sl No	Description	Budget (in Rupees) FY 2016-17	Actual (in Rupees) FY 2016-17 (from April'16 to Sep'2016)	Actual (in Rupees) FY 2016-17 (from April'16 to March'2017)
1	Pollution Control & Environment monitoring	1540000.00	574975.50	1674221.50
2	Reclamation/ Back filing & Rehabilitation**	40000000.00	33837173.00	74355537.00
3	Green belt, Plantation & Water spraying arrangement	2100000.00	2051751.00	6821323.50
4	Rural Development	20000000.00	10244807.32	21404308.19

**Part of OB removed cost.

(B.K. Mahapatra)

Convenor (Quality & Environment)

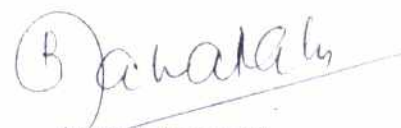
HINDALCO INDUSTRIES LIMITED
MINES DIVISION, COURT ROAD,
PO&DIST-LOHARDAGA (JHARKHAND)

Date: 05.09.16

Office Order

Environmental Cell has been re-constituted at Bagru Bauxite Mines (Area 75.41 Ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

- 1 Mr. Debananda Nayak (Sr. Mining Engineer) (Coordinator)
1. Mr. Jitendar kumar Singh (Asst. Engineer Survey)
2. Mr. Ajay Kumar Thakur (Asst. Manager)
3. Mr. Rahul Gaurav (Asst. Engineer)
4. Mr. Sudeep Mumar (GET)
5. Mr. Vijay Sahoo (Mining Mate)



(B.K. Mahapatra)
Convenor (Quality & Environment)

PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-16 to March-17

NAME OF THE MINES	MINING LEASE AREA (IN HA)	MINED OUT AREA (HA)	BACK FILLED AREA (HA)	PRODUCTION (In MT)	OVERBURDEN (In Cu.M)
Shrengdag Bauxite	155.81	5.87	5.10	258487.00	413395.00
Gurdari Bauxite Mines	584.19	12.94	10.63	324200.00	428811.00
Jalim & Sanai	12.14	1.04	0.45	44624.00	36500.00
Serangdag	140.06	0.00	0.00	0.00	0.00
Pakhar Buxite Mines	115.13	3.90	3.40	282190.00	370111.00
Pakhar Buxite Mines	8.09	0.00	0.00	0.00	0.00
Kujam-I	80.87	4.52	4.05	148770.00	272334.00
Kujam-II	157.38	8.30	7.85	294830.00	572328.00
Amtipani	190.95	6.61	5.91	149450.00	282375.00
Chiro-Kukud	152.57	3.09	2.03	87570.00	154928.20
Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0.00
Hisri New	14.55	1.77	1.27	98608.00	90560
Bhusar	65.31	0.68	1.38	171961.00	51545.00
Bagru	75.41	0.00	0.00	0.00	0.00
Minerals & Minerals Limited					
Pakhar Buxite Mines	109.51	3.78	3.28	277220.00	414676.00
Pakhar Buxite Mines	15.58	0.00	0.00	0.00	0.00
Bimarla Bauxite Mines	134.53	5.47	2.61	112730.00	135260.64



(B.K. Mahapatra)
Convenor (Quality & Environment)

Monitored water level (FY 2016-17)

Location (Mines)	Elevation (Mtr)	Well type	Monsoon (July-Sep)		Post Monsoon (November)		Winter (January)		Pre Monsoon (April-May)		
			Inside ML	Outside ML	Inside ML	Outside ML	Inside ML	Outside ML	Inside ML	Outside ML	
	905	Open Well		21.32		22.70			27.30		29.10
	910	Open Well		24.38		24.56			26.50		27.40
Bagru Plateau (Hisri new, Bagru & Bhusar)	915	Open Well		29.00		28.43			29.90		31.35
	903	Open Well		22.81		33.15			35.15		35.70
	909	Open Well		20.15		28.72			30.15		30.25
	1000	Open Well		24.93		22.65			25.15		25.85
Pakhar Gr. Of Mines (115.13,109.507,15.58,8.	1083	Hand Pump	35.35			31.60		34.2			35.45
	1027	Open Well		25.80		28.40			30.15		31.35
Sherengdag Plateau (Serengdag 155.81 ha, Sherengdag 140.06 Ha, Jalim & Sanai)	1094	Hand Pump	41.74			39.55		42.60			42.85
	1081	Hand Pump	39.60			31.30		41.10			42.10
	1055	Hand Pump	33.00			27.50		35.50			35.65
	1066	Hand Pump	27.75			26.25		29.10			30.10
	1045	Hand Pump	29.30			27.70		29.90			30.50
	1061	Hand Pump	28.30			24.90		25.20			25.90
Gurdari	1059	Hand Pump	38.10			36.15		35.15			36.25
	1075	Hand Pump	27.90			26.75		28.40			29.65
	1075	Hand Pump	28.30			29.30		30.20			30.15
	1040	Open Well		33.90		21.85			35.15		36.65
Kujam I, Kujam II & Amtipani Mines	1041	Open Well		33.65		24.80			36.25		39.35
	1064	Hand Pump	31.50			28.60		36.10			42.00
	1052	Hand Pump	22.35			21.05			24.60		23.50
	1148	Hand Pump	33.40			28.30		34.20			37.45
Chiro Kukud	1151	Hand Pump	37.60			31.80		36.20			36.00
	1084	Hand Pump	34.20			33.15		35.60			39.50



(B.K. Mahapatra)
Convener (Quality & Environment)