



Ref No: HIL/LHD/JP (M)/MoEF/ 0437

Date: 26.11.2015

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'15 to Sep'15.**

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 located in Lohardaga, Jharkhand for the period **April'15 to Sep'15.**

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED


(Bijesh Kumar Jha)
Joint President (Mines)

Enclosure: - As Above

Copy to: Regional Office, MoEF, Ranchi

HINDALCO INDUSTRIES LIMITED

Mines Division, Court Road
PO & Distt. Lohardaga (Jharkhand)
PIN - 835 302, India
Tel. +91 6526 224112/224015/223113
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Regd. Office

Century Bhawan, 3rd Floor
Dr. Annie Besant Road, Worli, Mumbai, 400 030, India
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Website www.hindalco.com

Email hindalco@adityabirla.com

Corporate Identity No. L27020MH1958PLC011238

Bhusar Bauxite Mines of M/s Hindalco Industries Limited

Area 65.31 Ha

Period: April'15-September'15

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

Sl No	Specific Condition	Compliance
(i)	All the conditions stipulated by the State Pollution Control Board in their NOC shall be effectively implemented.	Implementations of the stipulated conditions are fulfilled.
(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.	Not applicable to this project.
(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 in the Bagru Plateau. The ground water table is much below the working depth. Hence, ground water not intersected due to mining activities.
(iv)	The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.	Agreed. No natural water course 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 stored temporarily and spread over the back filled area in the process of reclamation.
(vi)	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 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,	The over burden generated during the mining operation temporarily stacked at earmarked dump site (s) only for the purpose of backfilling, Backfilling area will be reclaimed by suitable plantation. Monitoring and management of rehabilitated area will continue until the vegetation becomes self-sustaining. Compliance status will be submitted to MoEF on six monthly basis.



	Bhubaneswar on six monthly basis.	
(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.</p> <p>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>No run-off is generated from mining activities. However to collect & manage rain water during monsoon, part of mined out area is used as settling tank for the runoff. Rain water is being used for watering the mine area, roads, green belt development, sprinkling on haul roads etc.</p> <p>Garland drain of suitable size will be provided as & when required.</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>The dimensions of the retaining wall of OB dumps are based on the average rain fall.</p>
(ix)	<p>Plantation shall be raised in an area of 52.50 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 the end of life of mine. The density of the trees should be around 2500 plants per ha.</p>	<p>It is already in practice. Phase wise plantation of native species in consultation with forest department will be carried out within the safety zone and mined out/reclaimed pits. Around 4500 saplings have been planted during FY 2015-16 within the Bagru plateau.</p>
(x)	<p>Regular water sprinkling should be</p>	<p>Mobile water tankers have been provided for</p>

	<p>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>sprinkling of water on road to contain dust. AAQ parameters are monitored on regular basis.</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 the area (Bagru Plateau).</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>Being complied. Water quality monitoring report is enclosed.</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>Water is collected from Rain water harvesting pond and necessary water cess is being paid regularly to Jharkhand State Pollution Control Board for Bagru group of Mines. As per the terms and conditions in Mining lease deed, we have the liberty to use water.</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</p>	<p>For our all operating mines regular maintenance of vehicles are undertaken to minimize vehicular emission. All the transporters have been instructed to obtain PUC for their vehicles from the concerned authority and submit to the concerned Officer</p>

(B)

	covered with a tarpaulin and shall not be overloaded..	for verification. Now a days all the vehicles have obtained such PUC .Bauxite are transported through tarpaulin cover trucks or ropeway from Bagru Hill to Lohardaga siding.
(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 at Mines is done at fixed blasting period i.e 12.00 Noon to 1.00 PM on working days. Mobile mining activities are not being practiced during blasting. All the precautionary and mitigative measures to control ground vibration and to arrest fly rocks are implemented.
(xvi)	Drills shall either be operated with dust extractors or equipped with water injection system.	Wet drilling is done in the drill holes by pumping water intermittently for dust suppression.
(xvii)	Consent to operate should be obtained from SPCB before starting/ enhanced production from the mine.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. All procedure for getting the lease renewal has been done & very shortly mine will be operative.
(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.

Sl 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.	Excavation of OB and Bauxite is being done as per the approved mining plan/scheme and obtained EC capacity. Quantum of mineral and OB excavated during the FY2015-16 is annexed.

(iii)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer 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.	The system is already in place. Air quality monitoring report is being submitted regularly at JSPCB and MoEF.
(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 for Bagru group of mines. To arrest fugitive dust proper water sprinkling will be 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.	Measures are being taken for control of noise levels below 85 dBA in the work environment PPEs are provided to workers.
(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.	Is being complied as per statute.
(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.	PPE's provided. Periodic training on safety & occupational health is being imparted to workers and health checks up conducted.
(viii)	Occupational health surveillance programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Being carried out.

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(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.
(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	The fund earmarked for environmental protection measures is being kept in separate account. Year wise expenditure is being reported to the Ministry and its Regional Office located at Bhubaneswar. Copy Annexed.
(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.
(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 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 Regional office Bhubaneswar, 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 authorities and the date of start of land development work.	Complied. Yearly date of financial closure is 31 st March.
(xv)	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry	Displayed.

	Centre and Collector's/Tehsildar's Office for 30 days.	
(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 enclosed for information and records.





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

M/S HINDALCO INDUSTRIES LIMITED

MINES DIVISION, DIST.-LOHARDAGA, JHARKHAND

REPORT

OF

**ENVIRONMENTAL MONITORING DATA
OF BAGRU PLATEAU**

FOR

(JULY TO SEPTEMBER QUARTER-2015)



GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

CONTENT

	LOCATION
	AMBIENT AIR QUALITY
1	Bagru Plateau- Office (Near Colony)
2	Hisri Pit Bagru Plateau
3	Bhusar Mine Pit Bagru Plateau
4	Entrance Gate Bagru Mine
	NOISE LEVEL
1	Bagru Plateau near office & workshop
	DRINKING WATER
1	Tap Water-Bagru Plateau near office.
	SURFACE WATER QUALITY
1	Bagru Mines water harvesting pond
2	Bhusar Mines water harvesting pond
	EFFLUENT WATER ANALYSIS
1	STP Outlet (Bagru Mines)
	STACK MONITORING OF DG SETS (FLUE GAS)
1	Bagru Mines Office-Bagru Plateau





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Report No: SEPT001/2015-16		Date: 3 rd October 2015			
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					
Received: 29.09.2015					
Registered: 29.09.2015					
Marks on Sample: Location: Bagru Plateau- Office (Near Colony)					
Sample collected on: 29.09.2015					
Test Start/End Date: 29.09.2015/30.09.2015					
LOCATION/IDENTIFICATION: Bagru Plateau- Office (Near Colony)					
PARAMETERS		UNIT	LIMIT	METHOD	Concentration
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	13.00
Nitrogen Dioxide	NO _x	µg/m ³	80	IS:5182 (Part-6):1975(Reaff:2004)	16.00
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part-23)	70.5
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR (40) Appendix-L	35.7
Carbon Monoxide	CO	µg/m ³	2	EPA 600/P-99/001F	0.13





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Report No: SEPT001/2015-16		Date: 3 rd October 2015			
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					
Received: 29.09.2015					
Registered: 29.09.2015					
Marks on Sample: Location: Hisri Pit Bagru Plateau					
Sample collected on: 29.09.2015					
Test Start/End Date: 29.09.2015/30.09.2015					
LOCATION/IDENTIFICATION: Hisri Pit Bagru Plateau					
PARAMETERS		UNIT	LIMIT	METHOD	Concentration
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	10.00
Nitrogen Dioxide	NO _x	µg/m ³	80	IS:5182 (Part-6):1975(Reaff:2004)	12.00
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part-23)	60.3
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR (40) Appendix-L	32.8
Carbon Monoxide	CO	µg/m ³	2	EPA 600/P-99/001F	0.10





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Report No: SEPT001/2015-16		Date: 3 rd October 2015			
Sample described by customer: AMBIENT AIR QUALITY MONITORING					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835303					
State: Jharkhand					
Country: India					
Sample Type: AMBIENT AIR QUALITY MONITORING					
Received: 29.09.2015					
Registered: 29.09.2015					
Marks on Sample: Location: Bhusar Mine Pit Bagru Plateau					
Sample collected on: 29.09.2015					
Test Start/End Date: 29.09.2015/30.09.2015					
LOCATION/IDENTIFICATION: Bhusar Mine Pit Bagru Plateau					
PARAMETERS		UNIT	LIMIT	METHOD	Concentration
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	11.50
Nitrogen Dioxide	NO _x	µg/m ³	80	IS:5182 (Part-6):1975(Reaff:2004)	14.50
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part-23)	62.5
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR (40) Appendix-L	33.9
Carbon Monoxide	CO	µg/m ³	2	EPA 600/P-99/001F	0.12





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Report No: SEPT001/2015-16 Date: 3rd October 2015

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**

Received: 29.09.2015

Registered: 29.09.2015

Marks on Sample: Location: **Entrance Gate Bagru Mine**

Sample collected on: 29.09.2015

Test Start/End Date: 29.09.2015/30.09.2015

LOCATION/IDENTIFICATION: **Entrance Gate Bagru Mine**

PARAMETERS		UNIT	LIMIT	METHOD	Concentration
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	8.50
Nitrogen Dioxide	NOx	µg/m ³	80	IS:5182 (Part-6):1975(Reaff:2004)	12.50
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part-23)	70.0
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR (40) Appendix-L	35.5
Carbon Monoxide	CO	µg/m ³	2	EPA 600/P-99/001F	0.15





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Report No: SEPT001/2015-16	Date: 3 rd October 2015
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	
Test Start: 28.09.2015	
End Date: 29.09.2015	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result)	Dates
Month			Average of 16 continuous hours in Sep-15		Average of 8 continuous hours in Sep-15	
Bagru Plateau near office & workshop	dB (A) L_{eq}	75	51.3	70	40.8	29/09/2015





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Report No: SEPT001/2015-16 Date: 3rd October 2015

Sample described by customer : DRINKING WATER

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: DRINKING WATER

Received: 29.09.2015

Registered: 29.09.2015

Marks on Sample: Location: Tap Water-Bagru Plateau near office.

Sample collected on: 29.09.2015

Quantity: 5 L X 2 No. PVC Can

Test Start/End Date: 29.09.2015/02.10.2015

Sample collected by: M/S GEMS PROJECT PVT LTD.

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.5	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.3	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.05	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	90	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	65	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	70	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	9.0	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	5.0	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
14	Nitrate (as NO ₃)	mg/l	1.10	45 max	APHA 22 nd Ed. 2012, 4500-NO3-E, 4-125
15	Fluoride (as F)	mg/l	0.25	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.20	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	19.0	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67



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18	Magnesium (as Mg)	mg/l	3.5	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-NH3-F, 4-115
20	Iron (as Fe)	mg/l	0.15	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.10	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.05	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<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	<0.05	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C6H5OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4- 175 & F 4-178





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Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Colliforms	MPN/100mL	<1.1	N.D	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	Absent	N.D	APHA 22 nd Ed. 2012, 9221-B & C, 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 (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α-HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	δ-HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Note: Water tested and found to suitable for drinking purpose





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

Report No: SEPT001/2015-16		Date: 3 rd October 2015			
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					
Received: 29.09.2015					
Registered: 29.09.2015					
Marks on Sample: Location: Bagru Mines water harvesting pond					
Sample collected on: 29.09.2015					
Quantity: 5 L X 2 No. PVC Can					
Test Start/End Date: 29.09.2015/02.10.2015					
Sample collected by: M/S GEMS PROJECT PVT LTD.					
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.5	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	<0.05	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	98	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
10	Total hardness (as CaCO ₃)	mg/l	65	200 max	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	74	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	15.0	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	8.0	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
14	Nitrate (as NO ₃)	mg/l	1.30	45 max	APHA 22 nd Ed. 2012, 4500-NO3-E, 4-125
15	Fluoride (as F)	mg/l	0.30	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.17	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	26.0	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

18	Magnesium (as Mg)	mg/l	5.0	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH3-F, 4-115
20	Iron (as Fe)	mg/l	0.15	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	0.13	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	0.03	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	<0.05	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C6H5OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4- 175 & F 4-178





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Colliforms	MPN/100mL	<1.1	N.D	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	Absent	N.D	APHA 22 nd Ed. 2012, 9221-B & C, 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 (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α-HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	δ-HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

Report No: SEPT001/2015-16			Date: 3 rd October 2015		
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					
Received: 29.09.2015					
Registered: 29.09.2015					
Marks on Sample: Location: Bhusar Mines water harvesting pond					
Sample collected on: 29.09.2015					
Quantity: 5 L X 2 No. PVC Can					
Test Start/End Date: 29.09.2015/02.10.2015					
Sample collected by: M/S GEMS PROJECT PVT LTD.					
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.4	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	<0.05	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	94	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	63	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	67	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	17.0	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	9.0	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
14	Nitrate (as NO ₃)	mg/l	1.40	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.20	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.15	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25



GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

17	Calcium (as Ca)	mg/l	25.0	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	3.0	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	0.07	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	0.15	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	0.06	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	<0.05	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





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

Sl. No.	Parameters	Unit	Result	Acceptable Limit	Method Reference
				(IS 10500:2012)	
Microbiological Analysis					
1	Total Colliforms	MPN/100mL	<1.1	N.D	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	Absent	N.D	APHA 22 nd Ed. 2012, 9221-B & C, 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	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	δ-HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

Report No: SEPT001/2015-16			Date: 3 rd October 2015		
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					
Received: 29.09.2015					
Registered: 29.09.2015					
Marks on Sample: Location: STP Outlet (Bagru Mines)					
Sample collected on: 29.09.2014					
Quantity: 4 liters					
Test Start/End Date: 29.09.2015/02.10.2015					
Sample collected by: M/S GEMS PROJECT PVT LTD					
Sl. No.	Analysis	Method	Result	Unit	Limits
1	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	7.8	mg/l	5.5-9.0
2	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	20.0	mg/l	100
3	BOD @ 27 ^o C	IS 3025 (Part 44): 1993, RA2003, Amd.1	11.0	mg/l	30
4	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	33.0	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	80.0	mg/l	2100
7	Aluminum (as Al)	APHA 22 nd EDN 2012-3120B	1.7	mg/l	3
8	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	7.0	mg/l	75
9	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.5	mg/l	3
10	Temperature		14.5	^o C	Shall not exceed 5 ^o C above the receiving water temperature





GEMS PROJECTS PVT.LTD.

In Association with M/s MAHARASTRA ENVIRO POWER LTD, Nagpur
(NABL ACCREDITED LABORATORY)

Report no: SEPT001/2015-16	Date: 3 rd October, 2015			
SAMPLE DRAWN BY M/S GEMS PROJECT PVT LTD				
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: 28.09.2015 (11.00-11.30 Hrs)				
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.DMaterial OF construction: M.SShape of Stack: CircularWhether stack is provided with permanent platform & ladder: YesCapacity. 250 KVA				
B. Physical characteristics of stack <ul style="list-style-type: none">Height of the stack (a) from ground level: 7.0Diameter of the Stack at Sampling point: 0.2030Height of the sampling point from GL. 6.25				
C. Analysis/Characteristic of Stock <ul style="list-style-type: none">Fuel used: H.S.DFuel 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 (^o C)	IS 11255 Part: 3 1985 (Realf 2008)	300	---
2	Barometric pressure (mm of Hg)	IS 11255 Part: 3 1985 (Realf 2008)	660	---
3	Velocity of Gas (m/Sec)	IS 11255 Part: 3 1985 (Realf 2008)	10.5	---
4	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part: 3 1985 (Realf 2008)	500	---
5	Concentration of CO ₂ (% v/v)	IS 11255 Part: 3 1985 (Realf 2008)	4.5	5.0
6	Concentration of CO (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2008)	0.25	--
7	Concentration of SO ₂ (mg/Nm ³)	USEPA-6C	45	--
8	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	0.55	9.2
9	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part: 3 1985 (Realf 2003)	0.13	0.3
E. Pollution Control Device		Details of pollution control devices attached with the stack: Nil		
F. Remarks: Nil				





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

BAGRU PLATEAU- ENVIRONMENTAL MONITORING REPORT

JUNE 2015

Vijay Pandey
SENIOR EXECUTIVE



Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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

Mobile No: +91 9431.102.102 / +91 9955.358.262,

E-mail: mahabalranchi@gmail.com

Hindalco Industries: Environmental Monitoring report

June 2015

Report no. : JUNE014/2015-16	Date: 17 th June, 2015
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-Bagru Colony near Office	
Sample collected on: 19.05.2015	
Received: 28.05.2015	
Registered: 28.05.2015	
Test Start/End Date: 15.06.2015/17.06.2015	

LOCATION / IDENTIFICATION: Bagru Plateau- Bagru Colony Near Office					
PARAMETERS		UNIT	LIMIT	METHOD	19/05/2015
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	19.8
Nitrogen Dioxide	NO ₂	µg/m ³	80	IS:5182(Part-6):1975 (Reaff:2004)	18.83
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part 23)	71.38
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR(40) Appendix-L	41.62
Carbon Monoxide	CO	mg/m ³	2	EPA 600/P-99/001F	0.19

Vijay Pandey
SENIOR EXECUTIVE



Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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Hindalco Industries: Environmental Monitoring report

June 2015

Report no : JUNE015/2015-16	Date: 17 th June, 2015
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- Hisri Pit Bagru Plateau	
Sample collected on: 19.05.2015	
Received: 28.05.2015	
Registered: 28.05.2015	
Test Start/End Date: 15.06.2015/17.06.2015	

LOCATION / IDENTIFICATION: Bagru Plateau- Hisri Pit Bagru Plateau					
PARAMETERS		UNIT	LIMIT	METHOD	19/05/2015
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	20.6
Nitrogen Dioxide	NO ₂	µg/m ³	80	IS:5182(Part-6):1975 (Reaff:2004)	18.5
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part 23)	76.6
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR(40) Appendix-L	47.4
Carbon Monoxide	CO	mg/m ³	2	EPA 600/P-99/001F	0.12

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Hindalco Industries: Environmental Monitoring report

June 2015

Report no. : JUNE016/2015-16	Date: 17 th June, 2015
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- Bhusar Mine Pit Bagru Plateau	
Sample collected on: 19.05.2015	
Received: 28.05.2015	
Registered: 28.05.2015	
Test Start/End Date: 15.06.2015/17.06.2015	

LOCATION / IDENTIFICATION: Bagru Plateau- Bhusar Mine Pit Bagru Plateau					
PARAMETERS		UNIT	LIMIT	METHOD	19/05/2015
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	26.1
Nitrogen Dioxide	NO ₂	µg/m ³	80	IS:5182(Part-6):1975 (Reaff:2004)	60.5
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part 23)	71.9
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR(40) Appendix-L	46.2
Carbon Monoxide	CO	mg/m ³	2	EPA 600/P-99/001F	0.51

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Hindalco Industries:Environmental Monitoring report

June 2015

Report no : JUNE017/2015-16	Date: 17 th June, 2015
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- Ketrang Village Bagru Plateau	
Sample collected on: 19.05.2015	
Received: 28.05.2015	
Registered: 28.05.2015	
Test Start/End Date: 15.06.2015/17.06.2015	

LOCATION / IDENTIFICATION: Bagru Plateau- Ketrang Village Bagru Plateau					
PARAMETERS		UNIT	LIMIT	METHOD	19/05/2015
Sulphur Dioxide	SO ₂	µg/m ³	80	IS:5182 (Part-2):2001 (Reaff:2006)	25.3
Nitrogen Dioxide	NO ₂	µg/m ³	80	IS:5182(Part-6):1975 (Reaff:2004)	21.1
Particulate Matter (size less than 10 µm)	PM ₁₀	µg/m ³	100	IS:5182 (Part 23)	79.4
Particulate Matter (size less than 2.5 µm)	PM _{2.5}	µg/m ³	60	USEPA CFR(40) Appendix-L	49.6
Carbon Monoxide	CO	mg/m ³	2	EPA 600/P-99/001F	0.43

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Hindalco Industries: Environmental Monitoring report

June 2015

Report no: : JUNE018/2015-16		Date: 18 th June, 2015		
SAMPLE DRAWN BY MAHABAL ENVIRO ENGINEERS PVT LTD				
Sample described as: FLUE GAS				
Name of the Industry: M/S HINDALCO INDUSTRIES LIMITED				
Address: Mines Division, Lohardaga, Jharkhand, Pin-835 302				
Date & time of Sampling: 19.05.2015 (11.00-11.30 Hrs)				
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 • Running Load : 90 KVA 				
B. Physical characteristics of stack				
<ul style="list-style-type: none"> • Height of the stack (a) from ground level: 7.0 • Diameter of the Stack at sampling point: 0.2030 • Height of the sampling point from GL: 6.25 				
C. Analysis/Characteristic of Stack				
<ul style="list-style-type: none"> • Fuel used: H.S.D • Fuel Consumption: 30 lt/hr 				
D. Analysis Report				
S.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)	299	--
2.	Barometric pressure (mm of Hg)	IS 11255 Part:3 1985 (Realf 2008)	645	--
3.	Velocity of Gas (m/sec)	IS 11255 Part:3 1985 (Realf 2008)	10.3	--
4.	Quantity of Gas flow (Nm ³ /hr)	IS 11255 Part:3 1985 (Realf 2008)	494	--
5.	Concentration of CO ₂ (% v/v)	IS 11255 Part:3 1985 (Realf 2008)	4.37	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	48	--
8.	Concentration of NO ₂ (gm/kw-h)	USEPA-7E	0.51	9.2
9.	Concentration of Particulate Matters (gm/kw-h)	IS 11255 Part 3: 1985 (Realf 2003)	0.07	0.3
E. Pollution Control Device				
Details of pollution control devices attached with the stack: Nil				
F. Remarks: Nil				

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Hindalco Industries: Environmental Monitoring report

June 2015

Report no: : JUNE019/2015-16			Date: 18 th June, 2015		
Sample described by customer: EFFLUENT					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent					
Sample Location : STP Outlet (Bagru Mines)					
Sample collected on: 19.05.2015					
Quantity: 4 litres					
Sample collected by: Mahabal EnviroEngineers Pvt Limited					
Received: 28.05.2015					
Registered: 28.05.2015					
Test Start/End Date: 15.06.2015/17.06.2015					
S.No	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92	7.9	--	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN:2012-2540	18.9	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	14.4	mg/l	30
4.	Oil & Grease	IS 3025(Part 39): 1991, RA 2003, Ed.2.1	< 5.0	mg/l	10
5.	Total Dissolved Solids	APHA 22 nd EDN 2012-2540	24.8	mg/l	2100
6.	Aluminum(as Al)	APHA 22 nd EDN 2012-3120B	1.4	mg/l	3
7.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	5.25	mg/l	75
8.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.2	mg/l	3
9.	Temperature	-	30	°C	shall not exceed 5°C above the receiving water temperature

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Hindalco Industries:Environmental Monitoring report

June 2015

Report no: : JUNE020/2015-16					Date: 18 th June, 2015
Sample described by customer: EFFLUENT					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent					
Sample Location: Maintenance Garage Bagru Mines					
Sample collected on: 19.05.2015					
Quantity: 4 litres					
Sample collected by: Mahabal EnviroEngineers Pvt Limited					
Received:28.05.2015					
Registered: 28.05.2015					
Test Start/End Date: 15.06.2015/17.06.2015					
S.No	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92	7.4	--	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN:2012-2540	17.9	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	13.9	mg/l	30
4.	Oil & Grease	IS 3025(Part 39): 1991, RA 2003, Ed.2.1	< 5.0	mg/l	10
5.	Total Dissolved Solids	APHA 22 nd EDN 2012-2540	20.5	mg/l	2100
6.	Aluminum(as Al)	APHA 22 nd EDN 2012-3120B	1.18	mg/l	3
7.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	6.5	mg/l	75
8.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.07	mg/l	3
9.	Temperature	-	30	°C	shall not exceed 5°C above the receiving water temperature

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Hindalco Industries: Environmental Monitoring report

June 2015

Report no: : JUNE021/2015-16			Date: 18 th June, 2015		
Sample described by customer: SOIL					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample type: SOIL					
Marks on Sample: Location: Bagru Mines					
Sample collected on: 20.05.2015					
Quantity: 2 kgs					
Sample collected by: Mahabal Enviro Engineers Pvt Limited					
Received: 28.05.2015					
Registered: 28.05.2015					
Test Start/End Date: 15.06.2015/17.06.2015					
S.No	Analysis		Method	Result	Unit
1.	Colour	--	--	Gray	-
2.	Texture	--	F.A.U.N (2007)	Loamy Sand	-
3.	Bulk Density	--	By Bulk density Apparatus	1.00	gm/cm ³
4.	Water Holding Capacity	--	F.A.U.N (2007)	28.5	%
5.	pH	--	F.A.U.N (2007)	6.58	-
6.	Electrical Conductivity	--	F.A.U.N (2007)	200.0	µs/cm
7.	Organic Carbon	--		0.55	%
8.	Organic Matter	--	Black & White Wet Digestion Method	0.79	%
9.	Available Nitrogen	--	Soil & Water Book by P.K Gupta	111.5	mg/kg
10.	Available Phosphorus	--	Soil & Water Book by P.K Gupta	16.5	mg/kg
11.	Available Potassium	--	Soil & Water Book by P.K Gupta	381	mg/kg
12.	Exchangeable Calcium	Ca	Soil & Water Book by P.K Gupta	27.20	meq/100gm
13.	Exchangeable Magnesium	Mg	Soil & Water Book by P.K Gupta	1.38	meq/100gm
14.	Exchangeable Sodium	Na	Soil & Water Book by P.K Gupta	2.20	meq/100gm
15.	Exchangeable Potassium	K	Soil & Water Book by P.K Gupta	1.40	meq/100gm
16.	Total Exchangeable Bases		Soil & Water Book by P.K Gupta	31.50	meq/100gm
17.	Manganese	Mn	USEPA 3052	0.40	mg/kg
18.	Arsenic	As	USEPA 3052	2.0	mg/kg
19.	Silica	SiO ₂	USEPA 3052	54.5	%
20.	Aluminum	Al ₂ O ₃	USEPA 3052	6.5	%
21.	Iron	Fe ₂ O ₃	USEPA 3052	5.00	%
22.	Calcium	CaO	USEPA 3052	8.90	%
23.	Magnesium	MgO	USEPA 3052	1.83	%
24.	Sodium	Na ₂ O	USEPA 3052	0.270	%
25.	Potassium	K ₂ O	USEPA 3052	0.230	%
26.	Sulphate	SO ₄	USEPA 3052	0.69	%

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Hindalco Industries: Environmental Monitoring report

June 2015

Report no: : JUNE022/2015-16	Date: 18 th June, 2015
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: Bagru Colony	
Sample collected on: 19.05.2015	
Quantity: 5 L X 2 No. PVC Can	
Sample collected by: Mahabal EnviroEngineers Pvt Limited	
Received: 28.05.2015	
Registered: 28.05.2015	
Test Start/End Date: 15.06.2015/17.06.2015	

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
1.	Colour	Hazen	< 1	5 Max	APHA 22nd Ed. 2012, 2120-B, 2-6
2.	Odour	-	Agreeable	Agreeable	IS 3025 (Part 5):1983, Reaffirmed 2006
3.	Taste	-	Agreeable	Agreeable	IS 3025 (Part 7):1984, Reaffirmed 2006
4.	Turbidity	NTU	0.3	1 Max	APHA 22nd Ed. 2012, 2130-B, 2-13
5.	pH	-	6.9	6.5-8.5	APHA 22nd Ed. 2012, 4500-H+B, 4-92
6.	Free Chlorides(Residual)	mg/l	<0.05	0.2 min	APHA 22nd Ed. 2012, 4500-Cl G, 4-69
7.	Total Dissolved Solids	mg/l	100	500 Max	IS 3025 (Part 16):1984 Reaffirmed 2006
8.	Monochloramines	mg/l	<0.05	-	APHA 22nd Ed. 2012, 4500-ClG, 4-69
9.	Dichloramines	mg/l	<0.05	-	APHA 22nd Ed. 2012, 4500-ClG, 4-69
10.	Total Hardness (as CaCO ₃)	mg/l	52	200 Max	APHA 22nd Ed. 2012, 2340-C, 2-44,45
11.	Alkalinity Total (as CaCO ₃)	mg/l	60	200 Max	IS 3025 (Part 23):1986 Reaffirmed 2009
12.	Chloride (as Cl)	mg/l	7.8	250 Max	APHA 22nd Ed. 2012, 4500-Cl-B, 4-72
13.	Sulphate (as SO ₄)	mg/l	4.2	200 Max	APHA 22nd Ed. 2012, 4500-SO4-E, 4-190



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Hindalco Industries: Environmental Monitoring report

June 2015

Continuation Sheet

S.No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14.	Nitrate (as NO ₃)	mg/l	1.14	45 Max	APHA 22nd Ed. 2012, 4500-NO ₃ -E, 4-125
15.	Fluoride (as F)	mg/l	0.19	1 Max	APHA 22nd Ed. 2012, 4500-FB& D, 4-84, 4-87
16.	Boron (as B)	mg/l	0.15	0.5 Max	APHA 22nd Ed. 2012, 4500-BB, 4-25
17.	Calcium(as Ca)	mg/l	16.5	75 Max	APHA 22nd Ed. 2012, 3500-Ca-B, 3-67
18.	Magnesium (as Mg)	mg/l	3.3	30 Max	APHA 22nd Ed. 2012, 3500- Mg- B, 3-84
19.	Ammonical Nitrogen/ Total Ammonia	mg/l	<0.1	-	APHA 22nd Ed. 2012, 4500 NH ₃ -F, 4-115
20.	Iron (as Fe)	mg/l	0.11	0.3 Max	APHA 22nd Ed. 2012, 3111-B,3-18
21.	Manganese (as Mn)	mg/l	N.D	0.1 Max	APHA 22nd Ed. 2012, 3111-B, 318
22.	Aluminium (as Al)	mg/l	0.06	0.03 Max	APHA 22nd Ed. 2012, 3500- Al-B, 3-61
23.	Cadmium (as Cd)	mg/l	N.D	0.003 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
24.	Chromium Total (as Cr)	mg/l	N.D	0.05 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
25.	Copper (as Cu)	mg/l	N.D	0.05 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
26.	Lead (as Pb)	mg/l	N.D	0.01 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
27.	Zinc (as Zn)	mg/l	0.08	5 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
28.	Arsenic (as As)	mg/l	<0.01	0.01 Max.	APHA 22nd Ed. 2012, 3114-C,3-38
29.	Mercury (as Hg)	mg/l	N.D.	0.001 Max.	APHA 22nd Ed. 2012, 3112-B,3-23
30.	Selenium (as Se)	mg/l	N.D.	0.01 Max.	APHA 22nd Ed. 2012, 3114-C, 3-38
31.	Nickel (as Ni)	mg/l	<0.06	0.02 Max.	APHA 22nd Ed. 2012, 3111 B,3-18
32.	Mineral Oil	mg/l	N.D.	0.5 Max.	IS 3025 (Part 39): 1991, Reaffirmed 2003, Ed. 2.1
33.	Cyanide (as CN)	mg/l	N.D.	0.05 Max.	APHA 22nd Ed. 2012, 4500-CN, C & E, 4-39 & 4-44
34.	Anionic detergents as MBAS	mg/l	<0.1	0.2 Max.	APHA 22nd Ed. 2012, 5540-C, 5-53
35.	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 Max.	APHA 22nd Ed. 2012, 5530- B & C, 5-47
36.	Polynuclear aromatic hydrocarbons (PAH)	µg/L	N.D	0.0001 mg/L Max.	APHA 22nd Ed. 2012, 6440, 6-93
37.	Polychlorinated Biphenyls (PCBs)	µg/L	N.D	0.0005 mg/l Max.	USEPA Method 8082
38.	Sulphide (as S)	mg/l	N.D	-	APHA 22nd Ed. 2012, 4500- S2-C 4-175 & F 4-178

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Hindalco Industries:Environmental Monitoring report

June 2015

Continuation Sheet

S.No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/ 100 mL	<1.1	N.D	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/ 100 mL	Absent	N.D	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	0.01	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.04	US EPA 508-1995
13.	Butachlor	µg/L	N.D	125	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2	US EPA 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	0.4	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	190	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.3	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A -1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

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

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Date:26.11.2015

OFFICE ORDER

In connection with the earlier office order dated 10.11.2014 the re constituted team of Environment management cell to ensure compliance of various environmental Acts, regulations & rules at Mines Division, Hindalco, Lohardaga as follows:

The Environment Management Cell will consist of:


1. B. K. Mahapatra, DGM (Quality & Environment), Convenor.

Members:

2. Ajay Kumar Pandey, Manager (Bagru Mines)
3. A Anbarasu, Mines Manager (Serengdag Mines)
4. S P Jha, Mines Manager (Pakhar Mines)
5. Kiran Sankar Singh, Mines Manager (Gurdari)
6. Vidya Sagar Singh, Mines Manager (Kujam)
7. Amar Bharati, Mines Manager (Amtipani)
8. Rajesh Ambastha, Mines Manager (Chiro Kukud & Orsa)
9. Ananda Sahu, Mines Manager (Bimarla Bauxite Mines)
10. Biplab Mukherjee (Asst. Manager- Geology)

By order


Bijesh Kumar Jha

 Joint President (Mines)

Cc to: - All Mines Manager
All Department head
Notice Board.

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2015-16

The composite cost during the year 2015-16 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud, Orsa pat(196.36 Ha), Bhusar (65.31 Ha)& Bimarla Bauxite Mines (134.52 Ha).

SI No	Description	Budget (in Rupees) FY 2015-16	Actual (in Rupees) FY 2015-16 (from April to Sep'2015)
1	Pollution Control & Environment monitoring	15,40,000/-	2,62,293/-
2	Reclamation/ Back filing & Rehabilitation	3,89,90,000/-	1,45,51,281/-
3	Green belt & Plantation	60,00,000/-	28,68,213/-
4	Rural Development	1,64,71,000/-	1,04,36,128/-

**Part of OB removed cost.


Convener
Environment Management Cell
Hindalco Industries Limited

PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-15 TO SEP-15

NAME OF THE MINES	MINING LEASE AREA (IN HA)	MINED OUT AREA (HA)	BACK FILLED AREA (HA)	PRODUCTIO N (In MT)	OVERBURDEN (In Cu.M)
Shrengdag Bauxite Mines	155.81	4.04	3.50	140103.00	428240.00
Gurdari Bauxite Mines	584.19	5.66	4.92	175340.00	273881.00
Jalim & Sanai	12.14	0.50	0.05	23569.00	16500.00
Serangdag	140.06	0.00	0.00	0.00	0.00
Pakhar Buxite Mines	115.13	1.43	1.90	104145.00	143361.70
Pakhar Buxite Mines	8.09	0.00	0.00	0.00	0.00
Kujam-I	80.87	1.54	0.47	84970.00	82735.79
Kujam-II	157.38	3.46	1.26	77365.00	215398.22
Amtipani	190.95	2.27	1.53	89045.00	121267.01
Chiro-Kukud	152.57	1.28	2.97	51890.00	80377.18
Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0.00
Hisri New	14.55	0.00	0.00	0.00	0.00
Bhusar	65.31	0.00	0.00	0.00	0.00
Bagru	75.41	0.00	0.00	0.00	0.00
Minerals & Minerals Limited					
Pakhar Buxite Mines	109.51	1.40	1.62	157280.00	137012.31
Pakhar Buxite Mines	15.58	0.00	0.00	0.00	0.00
Bimarla Bauxite Mines	134.53	0.00	0.00	0.00	0.00



 Copventer

Environment Management Cell
 Hindalco Industries Limited

Monitored water level (FY 2015-16)

Fig in meter

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
Bagru	905	Open Well		21.74		24.13				
	910	Open Well		24.32		24.55				
	915	Open Well		29.41		28.43				
	903	Open Well		22.83		33.11				
	909	Open Well		17.54		28.74				
Pakhar	1000	Open Well		24.95		22.69				
	1083	Hand Pump	35.36		31.63					
Sherengdag	1027	Open Well		25.84		28.36				
	1094	Hand Pump	41.74		39.55					
	1081	Hand Pump	39.65		31.30					
	1055	Hand Pump	33.07		27.53					
	1066	Hand Pump	27.76		26.27					
Gurdari	1045	Hand Pump	29.32		27.85					
	1061	Hand Pump	28.36		24.93					
	1059	Hand Pump	38.11		36.20					
	1075	Hand Pump	27.98		26.82					
	1075	Hand Pump	28.37		29.33					
Kujam	1040	Open Well		33.97		21.88				
	1041	Open Well		33.66		24.85				
	1064	Hand Pump	31.55		28.68					
Chiro Kukud	1052	Hand Pump	22.39			21.12				
	1148	Hand Pump	33.40							
	1151	Hand Pump	37.62			31.85				
	1084	Hand Pump	34.25			33.11				


 Convenor
 (Quality & Environment)