



Ref No: HIL/LHD/VP (M)/MoEF/ 623

Date: 28.11.12

To,  
Mr S Kerketta  
Joint Director(S)  
MoEF ,GOI, Eastern Regional Office  
A/3,Chandrashekharapur,  
Bhubaneswar- 751023 (Orissa)

**Sub: Compliance Report of EC conditions for Hisri-New Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Lohardaga, Jharkhand for the period April' 2012 - Sep' 2012.**

Ref: Environmental Clearance letter No J-11015/531/2007-1A.II (M) dated 17.06.2011

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Hisri-New (14.55 Ha)** Bauxite Mining project of M/s Hindalco located in Lohardaga, Jharkhand for the period April' 2012 - Sep' 2012.

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

*BKJ*  
(Bijesh Kumar Jha)  
VP (Mines)

Enclosure: - As Above

**Compliance of conditions laid down in Environmental Clearance**

**HISRI (NEW) BAUXITE MINES(14.55 Ha)**

**Period : April'12 – Sep'12**

J-11015/531/2007-IA.II (M) Dated 17.06.2011.

<b>Sl No</b>	<b>Conditions</b>	<b>Compliance Status</b>
Specific Conditions		
1	The project proponent shall obtain Consent to Establish and Consent to Operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.	Complied
2	The environmental clearance is subject to forestry clearance.	Forest clearance obtained.
3	The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.	Mining Lease is granted/ renewed by the State Govt. after due consideration and Cabinet approval on recommendation of District Collector who is the competent authority to give permission for using the agricultural land for non-agricultural purpose.
4	The mining operation shall be restricted to above ground water table and it should not intersect the ground water table. In case of working below ground water table, prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained, for which a detailed hydro – geological study shall be carried out.	Mining started. Working zone will be restricted to above ground water table.
5	The Project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected.	It is being ensured. No natural water course has been obstructed.
6	The top soil, if any shall temporarily be stored at earmarked site (s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	Sequential backfilling and reclamation of the mined out area are being exercised. Topsoil is being spread on backfilled area for reclamation of the area.
7	The solid waste generated during the mining operation shall be backfilled and there shall be no external overburden dump left at the end of the mine life. The entire excavated area of 12.19 ha. shall be backfilled and reclaimed by plantation. The backfilling should be carried out in such a	Overburden and waste rock are being used for back filling. Data pertaining to backfilling is enclosed as Annexure

	<p>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 &amp; Forest on six month basis.</p>	
8	<p>Catch drains and siltation ponds of appropriate size should be constructed around the working pit, sub-grade dump, soil and mineral dumps to arrest flow of silt and sediment directly into the agricultural fields, the Kisco Nadi, the Sukri Nadi, the Chungahat nallah, the Barki nallah and other water bodies. 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, settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the minepit and sub grade dump to prevent run off of water and flow sediments directly into the agricultural fields, the Kisco Nadi, the Sukri Nadi, the Chungahat nallah, the Barki nallah and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>No run off is being generated from mining activities. However, to collect and manage rainwater during monsoon drains and Pit sumps are made, part of mined out area is used as settling tank. Settled water is being used for sprinkling of quarry, roads, green belt development, etc.</p>
9	<p>Dimension of the retaining wall at the toe of the sub-grade, dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.</p>	<p>Complied</p>
10	<p>Plantation shall be raised in an area of 12.7 ha including a 7.5 m. 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. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within</p>	<p>Being carried out progressively.</p>

	first five years.	
11	Effective safe guard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels to particulate matter such as around loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	
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 periodic monitoring [(at least four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) once in each season)] shall be carried out in consultation with the State Ground Water Board/ Central Ground water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional office Bhubneshwar, The Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	It is being monitored. Monitoring report is enclosed as <b>Annexure</b>
14	Monitoring to the springs shall be carried out for the quality and quantity of water regularly so as to ensure that there is no adverse impact on the same due to the project. Records in this regards shall be maintained.	Agreed.
15.	It shall be ensured that there is no change in the hydrology of the area due to the project.	Complied.
16.	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) required for the project.	Will be complied

17.	Suitable rain water harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Will be implemented.
18.	Appropriate mitigative measures shall be taken to prevent pollution of the Kisco Nadi, the Sukri Nadi and other rivers in the buffer zone of the mine, in consultation with the State Pollution Control Board.	Will be implemented.
19	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of mineral from mine face to the Beneficiation plant.. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Regular maintenance of vehicles are undertaken to minimize vehicular emission. Care is taken on regular basis to arrest spillage/fugitive dust emission. At most care is taken to cover bauxite loaded trucks with Tarpaulin and overloading is avoided.
20	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.	Being complied with.
21	Drills shall either be operated with dust extractors or equipped with water injection system.	Being complied with.
22	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Complied.
23	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	There is no likely hood of effluent from mine, hence ETP is not required. The sewage water for working population is planned to be collected through Septic Tank/Soak Pit and treated in Sewage Treatment Plant already existing in adjoining Bagru ML.
24	The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 1 Km. from proposed mine.	Agreed. Being getting done through medical camp.
25	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	System is already in place

26.	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 the temporary structures to be removed after the completion of the project.	System is already in place.
27	The critical parameters such as RSPM (Particulate matter with size less than 10 µm (i.e. PM <sub>10</sub> , PM <sub>2.5</sub> ) and NO <sub>x</sub> in the ambient air within the impact zone, peak particle velocity at 300 m. distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharge water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (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 Minisry of Environment and Forests, which is available on the website of the Ministry <a href="http://www.envfor.nic.in">www.envfor.nic.in</a> shall also be referred in this regard for its compliance.	Being carried out.
28	A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.	Progressive Mine Closure Plan duly approved by Indian Bureau of Mines is with us.

#### 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.	Complied.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Complied.
3	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.	Complied.

4	<p>Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 <math>\mu\text{m}</math> (i.e. <math>\text{PM}_{10}</math>) <math>\text{PM}_{2.5}</math>) &amp; <math>\text{NO}_x</math> monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.</p>	Being carried out
5	<p>Data on ambient air quality RSPM (Particulate matter with size less than 10 <math>\mu\text{m}</math> i.e. <math>\text{PM}_{10}</math>) &amp; <math>\text{NO}_x</math> should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.</p>	Being carried out.
6	<p>Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.</p>	Being carried out.
7	<p>Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.</p>	Compiled.
8	<p>Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.</p>	Being carried out.
9	<p>Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.</p>	Being carried out.

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.	Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy enclosed as Annexure.
11	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Agreed.
12	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Not applicable.
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.	Agreed.
14	The project proponent shall submit six monthly report on the status of the compliance of the stipulated environmental Clearance conditions including results of monitoring data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Officer, 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 Forests, Bhubneshwar, the respective Zonal Office of Central Pollution Control Board and State Pollution Control Board.	Being complied
15	A copy of clearance letter shall be sent by the proponent to concerned Panchyat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were	Complied.



	received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	
16	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.	Not Applicable.
17	The environmental statement for each financial year ending 31 <sup>st</sup> March in Form – V as is mandated to be submitted by the project proponent to the concerned Stated 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 the compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneshwar by e-mail.	Complied.
18.	The Company shall submit within 3 month their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to bring into focus any infringements/ deviation/ violation of environmental or forest norms/ conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance with environmental issues and ensuring compliance with Environment Clearance conditions and (iii) System of reporting of non compliance / violation of environmental norms to the Board of Directors of the Company and / or stakeholders or shareholders.	Already Submitted.
19	The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubneshwar.	Complied.



# झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद

## JHARKHAND STATE POLLUTION CONTROL BOARD

[ CONSTITUTED UNDER SECTION 4 OF THE WATER (PREVENTION & CONTROL OF POLLUTION) ACT, 1974 ]  
T.A.DIVISION BUILDING (GROUND FLOOR), HEC COMPLEX, DHURWA, RANCHI-834004.  
Phone No:-0651- 2400852, 2400851, Fax No:- 2400850.

Ref.No. PC/RNC/170/08 / G-801

Dated- 17.4.12

### CONSENT TO OPERATE

With reference to the application dated 28.09.2011 of G.M. (Operation), M/s Hindalco Industries Ltd; Court Road, P.O. + Dist- Lohardaga, I/C Hisri (New) Bauxite Mines -14.55 Ha. for consent under section 25 26 of the Water (Prevention & Control of Pollution) Act, 1974 and that under section 21 of the Air (Prevention & Control of Pollution) Act, 1981, he (they) is (are) granted consent to bring into use his(their) new/alterd/existing outlet(s) for discharge of trade effluent and (or) domestic sewage and to operate his (their) industrial plant to produce maximum 1,00,000 TPA of Bauxite ore At- Hisri (New) Bauxite Mines, P.O + Dist- Lohardaga for the period from 01.01.2012 to 31.12.2012 with the following conditions :

1. That, he(they) shall make any alteration, addition, deletion or modification in the <sup>S</sup> ~~plant~~ <sup>mines</sup> without the prior clearance from the Board.
2. That, he(they) shall abide by the obligations provided under section 24, 31 and 33A of the Water (Prevention & Control of Pollution) Act, 1974 and shall extend co-operation to the Board in performing its functions entrusted under section 20, 21, 23, 30 and 32 of the Act.
3. That, he(they) shall comply with the requirements of the Water (Prevention & Control of Pollution) Cess Act, 1977 read with the Water (Prevention & Control of Pollution) Cess Rules, 1978.
4. That, he(they) shall abide by the obligations provided under section 22, 23 and 31A of the Air (Prevention & Control of Pollution) Act, 1981 and shall extend co-operation to the Board in performing its functions entrusted under sections 24, 25 and 26 of the Act.
5. That, he(they) shall abide by the obligations provided under sections 5, 7, 8 and 9 of the Environment (Protection) Act, 1986 and shall extend co-operation in performing the functions entrusted under section 3, 10 and 11 of the Act.
6. That, he(they) shall abide by the applicable provisions of the Environment (Protection) Rules, 1986, the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008; the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989; the Bio-medical Waste (Management & Handling) Rules, 1998; the Municipal Solid Wastes (Management & Handling) Rules, 2000 and the Batteries (Management & Handling) Rules, 2001.
7. That, he(they) shall maintain the quality of discharge and (or) emission and (or) noise level of environmental pollutants in conformity with the standards as laid under Rule 3 of the Environment (Protection) Rules, 1986.

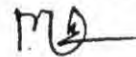
*TLG*

8. That, he(they) shall monitor his(their) effluent(s), emission(s) and the ambient air, noise level regularly and shall submit the report to the Board in compliance of the condition laid in paragraph 7.
9. That, he(they) shall establish well equipped environmental laboratory with the facilities of system(s) of continuous monitoring of effluent(s), emission(s) ambient water quality(ies), ambient air quality(ies) and ambient noise level(s) and transferring them (monitoring results) to his(their) website(s) and to the e-mail address(es) of the key persons of Jharkhand State Pollution Control Board, Zonal Office, Kolkata and Ministry of Environment & Forests, Regional Office, Bhubneshwar with simultaneous displaying at prominent locations in front of his(their) premises. [\*Unit(s) of medium and large scale under 17 categories of polluting industries of category A of EIA Notification, 2006.]
10. That, he(they) shall submit the environmental statement every year by 30<sup>th</sup> September and shall harvest all rain water precipitating in the premises and do three tier tree plantation in the premises as air barrier.
11. That, he(they) shall submit application for consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and that under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days before the expiration of the consent order 31.12.2012 or within 120 days from the date of receipt of the order, whichever is earlier.
12. *That, unit shall submit quality report of Ambient Air Quality and Ground Water Quality every quarter of the year.*
13. *That, the unit shall submit the status of compliance Environmental Clearance every quarter to the Board*
14. *That the unit shall reclaim the mined out area in phased manner as per EIA/EMP report.*
15. *That the unit shall implement harvest rain water of the mine and recharge it to the ground by the method of Central Ground Water Board Guideline that fits most to the mine.*
16. *That, the unit shall make arrangement to control the fugitive emissions occurring during the mining activities and plying of vehicles on haul as well as transport road;*
17. *That, the unit shall ensure that no transport vehicle should ply on road without covering the materials;*

To,

M/s Hindalco Industries Ltd;  
(1/C Hisri New Bauxite Mines-14.55 Ha.),  
Court Road, P.O. + Dist- Lohardaga.

  
( Sanjay Kumar Sinha)  
Member Secretary.





TEST REPORT

Report No. : CA:GL:3120010483

DATE : 24/07/2012

JOE No. : 1212804659

Report Control No.:3125011194

SAMPLE COLLECTED BY SGS

SAMPLE IDENTIFIED AS : EFFLUENT

CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302  
COUNTRY INDIA  
SAMPLING METHOD APHA 1060B  
SAMPLE DESCRIPTION EFFLUENT  
SAMPLE CONDITION IN PLASTIC BOTTLE  
SAMPLE QTY. 1LX4

MARKS ON SAMPLE SITE : BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE  
MINES(BAGRU PLATEAU)  
LOCATION : STP INLET

COLLECTED ON 15.07.2012  
REGISTERED ON 17/07/2012  
TEST START DATE 17/07/2012  
TEST END DATE 24/07/2012

TESTS	PROTOCOL	RESULT
ALUMINIUM	APHA 21 st EDN.:2005 (3120-B)	2.41mg/l
B.O.D @27°C for 3 days	IS 3025:PART 44:1993(Reaff.1999)	105 mg/l
CALCIUM	APHA 21ST EDN. 2005(3120B)	17.78 mg/l
IRON	APHA 21 st EDN.:2005 (3120B)	5.73 mg/l
OIL AND GREASE	APHA 21 st EDN.:2005 (5520B)	14 mg/l
pH @ 25°C	APHA 21 st EDN.:2005 (4500-H-B)	7.39 *
T.S.S.	APHA 21 st EDN.:2005 (2540 D)	408 mg/l
TOTAL DISSOLVED SOLIDS	APHA 21stEDN. 2005 (2540C)	312 mg/l

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## TEST REPORT

Report No. : CA:GL:3120010483

DATE : 24/07/2012

JOE No. : 1212804659

Report Control No.:3125011194

TESTS

PROTOCOL

RESULT

\* Analysed at site.

\*\*\*\* End of Report \*\*\*\*

per pro SGS India Private Ltd.

*S. A. Dutta*  
**Dr. Nemaï Ghosh**  
Manager Laboratory

**A. K. Dutta**  
Specialist O&A

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TEST REPORT

Report No. : CA:GL:3120010484

DATE : 24/07/2012

JOE No. : 1212804659

Report Control No.:3125011193

SAMPLE COLLECTED BY SGS

SAMPLE IDENTIFIED AS : EFFLUENT

CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302  
COUNTRY INDIA  
SAMPLING METHOD APHA 1060B  
SAMPLE DESCRIPTION EFFLUENT  
SAMPLE CONDITION IN PLASTIC BOTTLE  
SAMPLE QTY. 1LX4

MARKS ON SAMPLE SITE : BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE  
MINES(BAGRU PLATEAU)  
LOCATION : STP OUTLET

COLLECTED ON 15.07.2012  
REGISTERED ON 17/07/2012  
TEST START DATE 17/07/2012  
TEST END DATE 24/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per CPCB DIS. LAND FOR IRRIGATION	
			MIN	MAX
ALUMINIUM	APHA 21 st EDN.:2005 (3120-B)	0.05 mg/l		N/A
B.O.D @27°C for 3 days	IS 3025:PART 44:1993(Reaff.1999)	6.0 mg/l		100mg/l
CALCIUM	APHA 21ST EDN. 2005(3120B)	19.39 mg/l		N/A
IRON	APHA 21 st EDN.:2005 (3120B)	1.08 mg/l		N/A
OIL AND GREASE	APHA 21 st EDN.:2005 (5520B)	3.0 mg/l		10mg/l
pH @ 25°C	APHA 21 st EDN.:2005 (4500-H-B)	7.23 *	5.5	9.0

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SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700, 64996701, Fax : 91-33-24470267  
Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com

Member of the SGS Group (SGS SA)



TEST REPORT

Report No. : CA:GL:3120010484 DATE : 24/07/2012

JOE No. : 1212804659

Report Control No.:3125011193

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per CPCB DIS. LAND FOR IRRIGATION	
			MIN	MAX
T.S.S.	APHA 21 st EDN.:2005 (2540 D)	19 mg/l		200mg/l
TOTAL DISSOLVED SOLIDS	APHA 21stEDN. 2005 (2540C)	280 mg/l		N/A

\* Analysed at site.

\*\*\*\*\* End of Report \*\*\*\*\*

per pro SGS India Private Ltd.

*F. A. Gupta*  
Dr.Nemai Ghosh  
Manager Laboratory

*A. B. Datta*  
Gandhi Nagar

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TEST REPORT

Report No. : CA:GL:3120010485

DATE : 24/07/2012

JOE No. : 1212804659

Report Control No.:3125011192

**SAMPLE COLLECTED BY SGS**

**SAMPLE IDENTIFIED AS : EFFLUENT**

CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302  
COUNTRY INDIA  
SAMPLING METHOD APHA 1060B  
SAMPLE DESCRIPTION EFFLUENT  
SAMPLE CONDITION IN PLASTIC BOTTLE  
SAMPLE QTY. 1LX4

MARKS ON SAMPLE SITE : BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE  
MINES(BAGRU PLATEAU)  
LOCATION : MAINTANANCE GARAGE

COLLECTED ON 15.07.2012  
REGISTERED ON 17/07/2012  
TEST START DATE 17/07/2012  
TEST END DATE 24/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per CPCB DIS. LAND FOR IRRIGATION	
			MIN	MAX
ALUMINIUM	APHA 21 st EDN.:2005 (3120-B)	0.16 mg/l		N/A
B.O.D @27°C for 3 days	IS 3025:PART 44:1993(Reaff.1999)	4.8 mg/l		100mg/l
CALCIUM	APHA 21ST EDN. 2005(3120B)	9.70 mg/l		N/A
IRON	APHA 21 st EDN.:2005 (3120B)	0.74 mg/l		N/A
OIL AND GREASE	APHA 21 st EDN.:2005 (5520B)	2.9 mg/l		10mg/l
pH @ 25°C	APHA 21 st EDN.:2005 (4500-H-B)	7.49 *	5.5	9.0

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## TEST REPORT

**Report No. : CA:GL:3120010485** **DATE : 24/07/2012**

JOE No. : 1212804659

Report Control No.:3125011192

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per CPCB DIS. LAND FOR IRRIGATION	
			MIN	MAX
T.S.S.	APHA 21 st EDN.:2005 (2540 D)	12 mg/l		200mg/l
TOTAL DISSOLVED SOLIDS	APHA 21stEDN. 2005 (2540C)	56 mg/l		N/A

\* Analysed at site.

\*\*\*\* End of Report \*\*\*\*

per pro SGS India Private Ltd.

*F. A. Ghosh*  
**Dr.Nemai Ghosh**  
 Manager Laboratory



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## TEST REPORT

Report No. : CA:GL:3120010492

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011088

**SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED**

**SAMPLE IDENTIFIED AS : AMBIENT AIR**  
 CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
 ADDRESS LOHARDAGA, JHARKHAND  
 CITY 835302  
 COUNTRY INDIA  
 SAMPLING METHOD N.A.  
 SAMPLE DESCRIPTION AMBIENT AIR

MARKS ON SAMPLE SITE: BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MIENS  
 (BAGRU PLATEAU), LOCATION: KORGU VILLAGE  
 DATE OF SAMPLING 19.06.2012  
 SAMPLE RECD ON 18/07/2012  
 TEST START DATE 18/07/2012  
 TEST END DATE 23/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per CPCB (Residential area)	
			MIN	MAX
CARBON MONOXIDE (AT SITE)	GEN/SOP/CALLAB-88	<0.1 ppm*		1.7ppm(8h)
OXIDES OF NITROGEN (NO <sub>x</sub> )	IS 5182 PART 6:2006	8.9 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	94.4 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	51.2 µg/m <sup>3</sup>		60 µg/m <sup>3</sup>
SULPHUR DIOXIDE (SO <sub>2</sub> )	IS 5182:PART 2:2001	<4.0 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>

\* analysed at side.

\*\*\*\* End of Report \*\*\*\*  
 per pro SGS India Private Ltd.

Dr. Nemai Ghosh  
 Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010494

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011089

SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED

SAMPLE IDENTIFIED AS : AMBIENT AIR  
CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302  
COUNTRY INDIA  
SAMPLING METHOD N.A.  
SAMPLE DESCRIPTION AMBIENT AIR

MARKS ON SAMPLE SITE: BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MIENS  
(BAGRU PLATEAU), LOCATION: KEKRANG VILLAGE  
DATE OF SAMPLING 19.06.2012  
SAMPLE RECD ON 18/07/2012  
TEST START DATE 18/07/2012  
TEST END DATE 23/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per CPCB (Residential area)	
			MIN	MAX
CARBON MONOXIDE (AT SITE)	GEN/SOP/CALLAB-88	<0.1 ppm*		1.7ppm(8h)
OXIDES OF NITROGEN (NOx)	IS 5182 PART 6:2006	20.2 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	73.8 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	33.3 µg/m3		60 µg/m3
SULPHUR DIOXIDE (SO2)	IS 5182:PART 2:2001	<4.0 µg/m3		80 µg/m3

\* analysed at side.

\*\*\*\*\* End of Report \*\*\*\*\*

per pro SGS India Private Ltd.

Dr. Nemai Ghosh  
Manager Laboratory

Page 1 of 1

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TEST REPORT

Report No. : CA:GL:3120010495

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011090

SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED

SAMPLE IDENTIFIED AS : AMBIENT AIR  
CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302  
COUNTRY INDIA  
SAMPLING METHOD N.A.  
SAMPLE DESCRIPTION AMBIENT AIR

MARKS ON SAMPLE SITE: BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MIENS  
(BAGRU PLATEAU), LOCATION: MINES LEASE AREA  
DATE OF SAMPLING 20.06.2012  
SAMPLE RECD ON 18/07/2012  
TEST START DATE 18/07/2012  
TEST END DATE 23/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per CPCB (Residential area)	
			MIN	MAX
CARBON MONOXIDE (AT SITE)	GEN/SOP/CALLAB-88	<0.1 ppm*		1.7ppm(8h)
OXIDES OF NITROGEN (NO <sub>x</sub> )	IS 5182 PART 6:2006	6.7 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	88.1 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	35.5 µg/m <sup>3</sup>		60 µg/m <sup>3</sup>
SULPHUR DIOXIDE (SO <sub>2</sub> )	IS 5182:PART 2:2001	<4.0 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>

\* analysed at side.

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TEST REPORT

Report No. : CA:GL:3120010495

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011090

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			MIN	MAX

As per CPCB  
(Residential area)

\*\*\*\* End of Report \*\*\*\*  
per pro SGS India Private Ltd.

Dr. Nimai Ghosh  
Manager Laboratory

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## TEST REPORT

Report No. : CA:GL:3120010496

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011091

### SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED

SAMPLE IDENTIFIED AS : AMBIENT AIR  
 CUSTOMER NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
 ADDRESS LOHARDAGA, JHARKHAND  
 CITY 835302  
 COUNTRY INDIA  
 SAMPLING METHOD N.A.  
 SAMPLE DESCRIPTION AMBIENT AIR

MARKS ON SAMPLE SITE: BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MIENS  
 (BAGRU PLATEAU), LOCATION: SIYAR PARA VILLAGE  
 DATE OF SAMPLING 20.06.2012  
 SAMPLE RECD ON 18/07/2012  
 TEST START DATE 18/07/2012  
 TEST END DATE 23/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per CPCB (Residential area)	
			MIN	MAX
CARBON MONOXIDE (AT SITE)	GEN/SOP/CALLAB-88	<0.1 ppm*		1.7ppm(8h)
OXIDES OF NITROGEN (NO <sub>x</sub> )	IS 5182 PART 6:2006	4.5 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	87.3 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	41.0 µg/m <sup>3</sup>		60 µg/m <sup>3</sup>
SULPHUR DIOXIDE (SO <sub>2</sub> )	IS 5182:PART 2:2001	<4.0 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>

\* analysed at side.

\*\*\*\* End of Report \*\*\*\*

per pro SGS India Private Ltd.

Dr.Nemai Ghosh  
 Manager Laboratory

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## TEST REPORT

Report No. : CA:GL:3120010803-06

Date : 20.07.2012

JQE No 1212804776

Report Control No:3125010927/36-38

### SAMPLE DRAWN BY SGS INDIA PRIVATE LTD.

**SAMPLE DESCRIPTION** : MEASUREMENT OF NOISE LEVEL  
**NAME OF THE CLIENT** : M/S. HINDALCO INDUSTRIES LIMITED  
**ADDRESS** : MINES DIVISION, LOHARDAGA, JHARKHAND, PIN – 835 302  
**SAMPLING METHOD** : INSTRUMENTAL, USING SOUND LEVEL METER  
**SAMPLING SITE** : BAGRU/BHUSAR/HISRI NEW/ HISRI OLD BAUXITE MINES (BAGRU PLATEAU)  
**PROTOCOL** : GENSOP/CALLAB-116  
**TEST START DATE** : 20.07.2012  
**TEST END DATE** : 20.07.2012

SL NO.	SAMPLING LOCATION	DATE & TIME OF SAMPLING	DAY TIME NOISE LEVEL dB (A) Leq	LIMIT IN dB(A) Leq DAY TIME ( INDUSTRIAL AREA )
1.	POCKLEN ( EX-300 )	20.06.2012 (10:30 Hrs)	80	75
2.	DAMPER ( HM -7)	20.06.2012 (10:45 Hrs)	80	75
3.	WAGON DRILL ( ROC-203)	21.06.2012 (10:50 Hrs)	88	75
4.	COMPRESSOR ( XAH -210)	21.06.2012 (11:50 Hrs)	83	75

\*\*\*\*End of Report\*\*\*\*

Note: (i) The value is the Leq of twenty readings taken in each location (Day time).  
(ii) Day time shall mean from 6:00 am to 10:00 pm

Checked by

*Dipankar De Sarkar*  
**Dipankar De Sarkar**  
Asst. Manager (Operations)

per pro SGS India Private Ltd.

*Dr. Nimai Ghosh*  
**Dr. Nimai Ghosh**  
Manager-Laboratory

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## TEST REPORT

Report No. : CA:GL:3120010716

Date :19.07.2012

JOE No. 1212804732

Report Control No. : 3125010863

### SAMPLE DRAWN BY SGS INDIA PVT. LTD.

<b>SAMPLE DESCRIPTION</b>	<b>MEASUREMENT OF NOISE LEVEL</b>
<b>COMPANY NAME</b>	<b>M/S. HINDALCO INDUSTRIES LIMITED (MINES DIVISION)</b>
<b>ADDRESS</b>	MINES DIVISION, LOHARDAGA, JHARKHAND, PIN – 835 302
<b>SAMPLING SITE</b>	BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MINES (BAGRU PLATEAU)
<b>PROTOCOL</b>	GENSOP/CALLAB/116
<b>DATE OF SAMPLING</b>	20.06.2012 TO 21.06.2012
<b>TEST START DATE</b>	19.07.2012
<b>TEST END DATE</b>	19.07.2012

LOCATION	RESULT		LIMIT IN dB(A) Leq ( INDUSTRIAL AREA )	
	Day Time (L <sub>eq</sub> ) in dB(A)	Night time (L <sub>eq</sub> ) in dB(A)	Day Time	Night time
MINE LEASE AREA ( BAGRU OFFICE AREA )	55	43	75	70

\*\*\*\*\*End of Report\*\*\*\*\*

Note: (i) The value is the Leq of One Hundred Seventy readings taken in day time and seventy reading taken in night time  
(ii) Day time shall mean from 6:00 am to 10:00 pm  
(iii) Night time shall mean from 10:00 pm to 6:00 am

Checked by

*For Sujit Majumdar*  
Dipankar De Sarkar  
Asst. Manager (Operations)

per pro SGS India Private Ltd.

*Dr. Nemai Ghosh*  
Manager-Laboratory

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REPORT NO.: CA:GL:312009639

Date : 03.07.2012

JOE NO 1212804249

Report Control No 3125009835

SAMPLE DRAWN BY SGS INDIA PRIVATE 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: 20.06.2012 (11:10 – 11:42 Hrs)

Sampling Site : Bagru/Bhusar/ Hisri(Old)/Hisri(New) Bauxite Mines (Bagru Plateau)

**A. General information about stack :**

1. Stack connected to : Crusher Large
2. Emission due to : Burning of H.S.D
3. Material of construction of Stack : M.S
4. Shape of Stack : Circular
5. Whether stack is provided with permanent platform & ladder : Yes

**B. Physical characteristics of stack :**

1. Height of the stack (a) from ground level : 9.5 M
2. Diameter of the stack at sampling point : 0.20 M
3. Height of the sampling point from GL : 6.7 M

**C. Analysis/Characteristic of Stack**

1. Fuel used H.S.D
2. Fuel Consumption: 13.0 Lt/Hr

D.	PARAMETERS	PROTOCOL	RESULTS
1.	Temperature of emission ( °C)	IS 11255 Part 3: 1985 (Reaff. 1999)	208
2.	Barometric pressure (mm of Hg)	IS 11255 Part 3: 1985 (Reaff. 1999)	672
3.	Velocity of gas ( m/sec.)	IS 11255 Part 3: 1985 (Reaff. 1999)	14.87
4.	Quantity of gas flow (Nm <sup>3</sup> /hr.)	IS 11255 Part 3: 1985 (Reaff. 1999)	951
5.	Concentration of Carbon dioxide ( % v/v )	IS 11255 Part 3: 1985 (Reaff. 1999)	6.0
8.	Concentration of Carbon monoxide ( % v/v)	IS 11255 Part 3: 1985 (Reaff. 1999)	<0.2
9.	Concentration of Oxygen ( % v/v)	IS 11255 Part 3: 1985 (Reaff. 1999)	13.2
10.	Concentration of Particulate Matters (mg/Nm <sup>3</sup> )	IS 11255 Part 1: 1985 (Reaff. 1999)	21.0

**E. Pollution control device**

Details of pollution control devices attached with the stack : Nil

F. Remarks: Instrument used : Stack Monitoring Kit (SPM620, SI No. 830)

\*\*\*End of Report\*\*\*

Checked by

*Dipankar De Sarkar*  
Dipankar De Sarkar  
Asst. Manager(Operations)

per pro SGS India Private Ltd.

*S. A. Suffer*  
Dr. Nema Ghosh  
Manager-Laboratory  
*A. H. Datta*  
Chemist cum OAO

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## TEST REPORT

REPORT NO.:CA:GL:3120009638

Date : 03.07.2012

JOE NO 1212804249

Report Control No 3125009834

**SAMPLE DRAWN BY SGS INDIA PRIVATE 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: 20.06.2012 (09:40 – 10:06 Hrs)

Sampling Site : Bagru/Bhusar/Hisri(Old)/Hisri(New) Bauxite Mines ( Bagru Plateau)

**A. General information about stack :**

- 1 Stack connected to : DG Set ( 250 KVA)
- 2 Emission due to : Burning of H S D
- 3 Material of construction of Stack : M S
- 4 Shape of Stack : Circular
- 5 Whether stack is provided with permanent platform & ladder : Yes
- 6 Capacity : 250 KVA
- 7 Running Load : 140 KVA 112

**B. Physical characteristics of stack :**

- 1 Height of the stack (a) from ground level : 7.0 M
- 2 Diameter of the stack at sampling point : 0.2032 M
- 3 Height of the sampling point from GL : 6.25 M

**C. Analysis/Characteristic of Stack :**

- 1. Fuel used H.S.D 2. Fuel Consumption: 30 Lt/Hr.

D.	PARAMETERS	PROTOCOL	RESULTS	Limit as per MOEF G.S.R.448(E)
1	Temperature of emission ( °C)	IS 11255 Part : 3 1985 (Reaff.1999)	328	
2	Barometric pressure (mm of Hg)	IS 11255 Part : 3 1985 (Reaff.1999)	672	
3	Velocity of gas ( m/sec.)	IS 11255 Part : 3 1985 (Reaff.1999)	9.92	
4	Quantity of gas flow (Nm <sup>3</sup> /hr.)	IS 11255 Part : 3 1985 (Reaff.1999)	508	
5	Concentration of Carbon dioxide (% v/v )	IS 11255 Part : 3 1985 (Reaff.1999)	6.2	
6	Concentration of Sulphur dioxide (mg/Nm <sup>3</sup> )	USEPA – 6C	86	
7	Concentration of Nitrogen dioxide (gm/kw-h)	USEPA – 7E	0.64	9.2
8	Concentration of Oxygen (% v/v)	IS 11255 Part : 3 1985 (Reaff.1999)	13.4	
9	Concentration of Particulate Matters(gm/kw-h)	IS 11255 Part : 1 1985 (Reaff.1999)	0.04	0.3

**E. Pollution control device**

Details of pollution control devices attached with the stack Nil

**F. Remarks:** Instrument used : Stack Monitoring Kit (APM 620, SI No. 830)

\*\*\*End of Report\*\*\*

Checked by

*Dipankar De Sarkar*  
Dipankar De Sarkar  
Asst. Manager(Operations)

per pro SGS India Private Ltd.

*Dr. Nemai Ghosh*  
Dr. Nemai Ghosh  
Manager-Laboratory  
A. E. Datta  
GODHULI GUM QAO

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TEST REPORT

Report No. : CA:GL:3120010576

DATE : 27/07/2012

JOE No. : 1212804679

Control No. :3125011493

SAMPLE COLLECTED BY SGS

SAMPLE IDENTIFIED AS : SURFACE WATER

COMPANY NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302  
SAMPLING METHOD APHA 1060B/9060A  
SAMPLE DESCRIPTION SURFACE WATER  
SAMPLE CONDITION IN PLASTIC AND STERILISED BOTTLE  
SAMPLE QTY. 6.5L APP  
MARKS ON SAMPLE SITE : BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MINES  
(BAGRU PLATEAU)  
LOCATION : WTP INLET  
COLLECTED ON 15.07.2012  
REGISTERED ON 18/07/2012  
TEST START DATE 18/07/2012  
TEST END DATE 27/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ALKALINITY (as CaCO <sub>3</sub> )	IS 3025:PART 23 :1986(Reaff.1998)	6.27 mg/l	200mg/l	600mg/l
ALUMINIUM (as Al)	IS 3025 : Part 55 : 2003	0.2 mg/l	0.03mg/l	0.2mg/l
ANIONIC DETERGENTS (as MBAS)	ANNEX. K of IS 13428: 2005	<0.05 mg/l	0.2mg/l	1mg/l
ARSENIC (as As)	IS 3025:PART 37:1988(Reaff.1999)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
BORON	Annex.H OF IS:13428:2005	<0.05 mg/l	1.0mg/l	5.0mg/l

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## TEST REPORT

Report No. : CA:GL:3120010576

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011493

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
CADMIUM (as Cd)	IS 3025:PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
CALCIUM (as Ca)	IS 3025:PART 40 :1991(Reaff.2003)	1.21 mg/l	75mg/l	200mg/l
CHROMIUM (Cr6+)	IS 3025:PART 52:2003	<0.01 mg/l	0.05mg/l	No Relax.
COLOUR ( HAZEN UNITS)	IS 3025:PART 4 :1983(Reaff.2002)	10	5.0	25
COPPER	IS 3025: PART 42:1992(Reaff. 2003) BY ICPOES	<0.01 mg/l	0.05mg/l	1.5mg/l
CYANIDE ( as CN)	IS 3025:PART 27 :1986(Reaff.1998)	<0.05 mg/l	0.05mg/l	No Relax.
E.coli	IS 1622:1981(Reaff.2003)	Absent/100ml		ABS/100ml
Faecal coliforms	IS 1622:1981(Reaff2003)	Absent/100ml		ABS/100ml
FLUORIDE	IS:3025(PART 60):2008	<0.10 mg/l	1.0mg/l	1.5mg/l
IRON ( as Fe)	IS 3025:PART 53:2003 (BY ICPOES)	0.38 mg/l	0.3mg/l	1 mg/l
LEAD (as Pb)	IS 3025:PART 47:1994(Reaff.2003) BY ICPOES	0.006 mg/l	0.05mg/l	No Relax.
MAGNESIUM ( as Mg)	IS 3025:PART 46 :1994(Reaff.1999)	<1.0 mg/l	30mg/l	100mg/l
MANGANESE	IS:3025(PART 59) 2006	0.05 mg/l	0.1mg/l	0.3mg/l

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## TEST REPORT

Report No. : CA:GL:3120010576

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011493

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
MERCURY (as Hg)	IS 3025:PART 48 1994(Reaff 1999)BY ICPOES	<0.001 mg/l	0.001mg/l	No Relax.
MINERAL OIL	CLAUSE 6 OF IS 3025:PART 39:1991(Reaff. 2003)	BDL(DL:0.01 mg/l)	0.01mg/l	0.03mg/l
NITRATE	IS 3025:PART 34 :1988(Reaff.1999)	<0.50 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
pH	IS 3025:PART 11:1983(Reaff.2002)	8.29 *	6.5-8.5	No Relax.
PHENOLIC COMPOUNDS (as C6H5OH)	IS 3025(Part 43)1992(Reaff 2005)	<0.05 mg/l	0.001mg/l	0.002mg/l
RESIDUAL FREE CHLORINE	GEN/SOP/CALLAB-13 3	<0.10 mg/l *	0.2mg/l	--
SELENIUM	IS 3025:PART 56:2003 (BY ICPOES)	<0.005 mg/l	0.01mg/l	No Relax.
SULPHATE	CLAUSE 4 OF IS 3025:PART 24:1986(Reaff. 2003)	<2.0 mg/l	200mg/l	400mg/l
TASTE	IS 3025:PART 7 :1984(Reaff.2002)	Agreeable	Agreeable	-
Total Coliforms	IS 1622:1981(Reaff.2003)	11 MPN/100ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	6.06 mg/l	300mg/l	600mg/l
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	36.2	5.0NTU	10NTU

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TEST REPORT

Report No. : CA:GL:3120010576 DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011493

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
			As per IS 10500:1991(REAFF 1993)	
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.04 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS *analysed at site	IS 3025:PART 16:1984(Reaff.2002)	14 mg/l	500mg/l	2000mg/l

\*\*\*\*\* End of Report \*\*\*\*\*

per pro SGS India Private Ltd.

Dr.Nemai Ghosh  
Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010577

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011494

**SAMPLE COLLECTED BY SGS**

SAMPLE IDENTIFIED AS : SURFACE WATER

COMPANY NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302  
SAMPLING METHOD APHA 1060B/9060A  
SAMPLE DESCRIPTION SURFACE WATER  
SAMPLE CONDITION IN PLASTIC AND STERILISED BOTTLE  
SAMPLE QTY. 6.5L APP  
MARKS ON SAMPLE SITE : BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MINES  
(BAGRU PLATEAU)  
LOCATION : WTP OUTLET  
COLLECTED ON 15.07.2012  
REGISTERED ON 18/07/2012  
TEST START DATE 18/07/2012  
TEST END DATE 27/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ALKALINITY (as CaCO <sub>3</sub> )	IS 3025:PART 23 :1986(Reaff.1998)	17.24 mg/l	200mg/l	600mg/l
ALUMINIUM (as Al)	IS 3025 : Part 55 : 2003	0.17 mg/l	0.03mg/l	0.2mg/l
ANIONIC DETERGENTS (as MBAS)	ANNEX. K of IS 13428: 2005	<0.05 mg/l	0.2mg/l	1mg/l
ARSENIC (as As)	IS 3025:PART 37:1988(Reaff.1999)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
BORON	Annex.H OF IS:13428:2005	<0.05 mg/l	1.0mg/l	5.0mg/l

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## TEST REPORT

Report No. : CA:GL:3120010577

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011494

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
CADMIUM (as Cd)	IS 3025:PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
CALCIUM (as Ca)	IS 3025:PART 40 :1991(Reaff.2003)	5.66 mg/l	75mg/l	200mg/l
CHLORIDE ( as Cl)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	2.86 mg/l	250mg/l	1000mg/l
CHROMIUM (Cr6+)	IS 3025:PART 52:2003	<0.01 mg/l	0.05mg/l	No Relax.
COLOUR ( HAZEN UNITS)	IS 3025:PART 4 :1983(Reaff.2002)	10	5.0	25
COPPER	IS 3025: PART 42:1992(Reaff. 2003) BY ICPOES	<0.01 mg/l	0.05mg/l	1.5mg/l
CYANIDE ( as CN)	IS 3025:PART 27 :1986(Reaff.1998)	<0.05 mg/l	0.05mg/l	No Relax.
E.coli	IS 1622:1981(Reaff.2003)	Absent/100ml		ABS/100ml
Faecal coliforms	IS 1622:1981(Reaff2003)	Absent/100ml		ABS/100ml
FLUORIDE	IS:3025(PART 60):2008	<0.10 mg/l	1.0mg/l	1.5mg/l
IRON ( as Fe)	IS 3025:PART 53:2003 (BY ICPOES)	0.40 mg/l	0.3mg/l	1 mg/l
LEAD (as Pb)	IS 3025:PART 47:1994(Reaff.2003) BY ICPOES	<0.005 mg/l	0.05mg/l	No Relax.
MAGNESIUM ( as Mg)	IS 3025:PART 46 :1994(Reaff.1999)	1.23 mg/l	30mg/l	100mg/l

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TEST REPORT

Report No. : CA:GL:3120010577

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011494

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
MANGANESE	IS:3025(PART 59) 2006	0.03 mg/l	0.1mg/l	0.3mg/l
MERCURY (as Hg)	IS 3025:PART 48 :1994(Reaff.1999)BY ICPOES	<0.001 mg/l	0.001mg/l	No Relax.
MINERAL OIL	CLAUSE 6 OF IS 3025:PART 39:1991(Reaff. 2003)	BDL(DL:0.01 mg/l)	0.01mg/l	0.03mg/l
NITRATE	IS 3025:PART 34 :1988(Reaff.1999)	<0.50 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
pH	IS 3025:PART 11:1983(Reaff.2002)	7.97 *	6.5-8.5	No Relax.
PHENOLIC COMPOUNDS (as C6H5OH)	IS 3025(Part 43)1992(Reaff 2005)	<0.05 mg/l	0.001mg/l	0.002mg/l
RESIDUAL FREE CHLORINE	GEN/SOP/CALLAB-13 3	<0.10 mg/l *	0.2mg/l	--
SELENIUM	IS 3025:PART 56:2003 (BY ICPOES)	<0.005 mg/l	0.01mg/l	No Relax.
SULPHATE	CLAUSE 4 OF IS 3025:PART 24:1986(Reaff. 2003)	<2.0 mg/l	200mg/l	400mg/l
TASTE	IS 3025:PART 7 :1984(Reaff.2002)	Agreeable	Agreeable	-
Total Coliforms	IS 1622:1981(Reaff.2003)	<2 MPN/100ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	19.19 mg/l	300mg/l	600mg/l

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## TEST REPORT

Report No. : CA:GL:3120010577

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011494

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
			<u>As per IS</u> <u>10500:1991(REAFF</u> <u>1993)</u>	
TURBIDITY( in NTU )	IS 3025:PART 10 .1984(Reaff.2002)	30.4	5.0NTU	10NTU
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.03 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS *analysed at site	IS 3025:PART 16:1984(Reaff.2002)	36 mg/l	500mg/l	2000mg/l

\*\*\*\*\* End of Report \*\*\*\*\*

per pro SGS India Private Ltd.

**Dr.Nemai Ghosh**  
Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010566

DATE : 26/07/2012

JOE No. 1212804675

Control No.:3125011420

SAMPLE COLLECTED BY SGS

SAMPLE IDENTIFIED AS : GROUND WATER

COMPANY NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)

ADDRESS LOHARDAGA, JHARKHAND  
CITY 835302

SAMPLING METHOD APHA 1060B/9060A

SAMPLE DESCRIPTION GROUND WATER

SAMPLE CONDITION IN PLASTIC AND STERILISED BOTTLE

SAMPLE QTY. 6.5L APP

\*ARKS ON SAMPLE SITE: BAGRU/BHUSAR/HISRI OLD/HISRI NEW/BAUXITE MINES  
(BAGRU PLATEAU)

LOCATION : COLONY AREA (NEAR GUEST HOUSE)

COLLECTED ON 15.07.2012

REGISTERED ON 18/07/2012

TEST START DATE 18/07/2012

TEST END DATE 26/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ALKALINITY (as CaCO <sub>3</sub> )	IS 3025:PART 23 :1986(Reaff.1998)	210.11 mg/l	200mg/l	600mg/l
ALUMINIUM (as Al)	IS 3025 : Part 55 : 2003	<0.02 mg/l	0.03mg/l	0.2mg/l
ANIONIC DETERGENTS (as MBAS)	ANNEX. K of IS 13428: 2005	<0.05 mg/l	0.2mg/l	1mg/l
ARSENIC (as As)	IS 3025:PART 37:1988(Reaff.1999)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
BORON	Annex.H OF IS:13428:2005	<0.05 mg/l	1.0mg/l	5.0mg/l

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## TEST REPORT

Report No. : CA:GL:3120010566

DATE : 26/07/2012

JOE No. : 1212804675

Control No. :3125011420

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
CADMIUM (as Cd)	IS 3025:PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.
CALCIUM (as Ca)	IS 3025:PART 40 :1991(Reaff.2003)	53.33 mg/l	75mg/l	200mg/l
CHLORIDE ( as Cl)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	7.43 mg/l	250mg/l	1000mg/l
CHROMIUM (Cr6+)	IS 3025:PART 52:2003	<0.01 mg/l	0.05mg/l	No Relax.
COLOUR ( HAZEN UNITS)	IS 3025:PART 4 :1983(Reaff.2002)	5	5.0	25
COPPER	IS 3025: PART 42:1992(Reaff. 2003) BY ICPOES	<0.01 mg/l	0.05mg/l	1.5mg/l
CYANIDE ( as CN)	IS 3025:PART 27 :1986(Reaff.1998)	<0.02 mg/l	0.05mg/l	No Relax.
E.coli	IS 1622:1981(Reaff.2003)	Absent/100ml		ABS/100ml
Faecal coliforms	IS 1622:1981(Reaff2003)	Absent/100ml		ABS/100ml
FLUORIDE	IS:3025(PART 60),2008	<0.10 mg/l	1.0mg/l	1.5mg/l
IRON ( as Fe)	IS 3025:PART 53:2003 (BY ICPOES)	<0.05 mg/l	0.3mg/l	1 mg/l
LEAD (as Pb)	IS 3025:PART 47:1994(Reaff.2003) BY ICPOES	<0.005 mg/l	0.05mg/l	No Relax.
MAGNESIUM ( as Mg)	IS 3025:PART 46 :1994(Reaff.1999)	18.65 mg/l	30mg/l	100mg/l

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## TEST REPORT

Report No. : CA:GL:3120010566

DATE : 26/07/2012

JOE No. : 1212804675

Control No.:3125011420

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS 10500:1991(REAFF 1993)	
			Desirable	Permissible
MANGANESE	IS:3025(PART 59) 2006	<0.01 mg/l	0.1mg/l	0.3mg/l
MERCURY (as Hg)	IS 3025:PART 48 :1994(Reaff.1999)BY ICPOES	<0.001 mg/l	0.001mg/l	No Relax.
MINERAL OIL	CLAUSE 6 OF IS 3025:PART 39:1991(Reaff. 2003)	BDL(DL-0.01 mg/l)	0.01mg/l	0.03mg/l
NITRATE	IS 3025:PART 34 :1988(Reaff.1999)	<0.50 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5.1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
pH	IS 3025:PART 11:1983(Reaff.2002)	7.35 *	6.5-8.5	No Relax.
PHENOLIC COMPOUNDS (as C6H5OH)	IS 3025(Part 43)1992(Reaff 2005)	<0.001 mg/l	0.001mg/l	0.002mg/l
RESIDUAL FREE CHLORINE	GEN/SOP/CALLAB-13 3	<0.10 mg/l *	0.2mg/l	--
SELENIUM	IS 3025:PART 56.2003 (BY ICPOES)	<0.005 mg/l	0.01mg/l	No Relax.
SULPHATE	CLAUSE 4 OF IS 3025:PART 24:1986(Reaff. 2003)	<2.0 mg/l	200mg/l	400mg/l
TASTE	IS 3025:PART 7 :1984(Reaff.2002)	Agreeable	Agreeable	-
Total Coliforms	IS 1622:1981(Reaff.2003)	<2 MPN/100ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	210.08 mg/l	300mg/l	600mg/l

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TEST REPORT

Report No. : CA:GL:3120010566 DATE : 26/07/2012

JOE No. : 1212804675

Control No.:3125011420

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
			<u>As per IS</u> <u>10500:1991(REAFF</u> <u>1993)</u>	
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	<0.02	5.0NTU	10NTU
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.23 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff.2002)	276 mg/l	500mg/l	2000mg/l

\* Analysed at site.

\*\*\*\*\* End of Report \*\*\*\*\*

per pro SGS India Private Ltd.

Dr. Nemai Ghosh  
Manager Laboratory

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**BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2012-13 (Up to-Sep)**

The composite cost during the year 2012-13 (April to Sep) for environmental protection & pollution control by Jharkhand Mines division of Hindalco Industries Ltd for implementation the suggested measures in EC at all the operating mines in the state of Jharkhand-namely Pakhar (115.13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam (80.97 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Chiro kukud,& Orsa pat.

Sl No	Description	Budget (in Lakh Rs.)	Actual (in Lakh Rs.)
1	Pollution Control & Environment monitoring	7.50	4.50
2	Reclamation/ Back filing & Rehabilitation	**	20.60
3	Green belt & Plantation	25.00	33.04
4	Rural Development	65.00	36.30

\*\*part of OB removed cost.



### OFFICE ORDER

In connection with the earlier office order dated 12.11.2011 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, Sr. Manager (Geology), Convenor.

Members:

2. Utpal Gupta, Manager (Environment)
3. S. Joshi, Manager (Bagru Mines)
4. A. Anbarasu, Mines Manager (Serengdag A)
5. Ajay Pandey, Mines Manager (Pakhar)
6. Kiran Sankar Singh, Mines Manager (Gurdari)
7. Vidya Sagar Singh, Mines Manager (Serengdag B)
8. Ashish Upadhyay, Mines Manager (Kujam I & II)
9. Amar Bharati, Mines Manager (Amtipani)
10. Manoj Kumar Singh, Mines Manager (Pakhar 109.507 Ha)
11. Rajesh Ambastha, Mines Manager (Chiro Kukud & Orsa)

By order

A handwritten signature in black ink, appearing to read "bjh".

Bijesh Kumar Jha  
VP (Mines)

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



**PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-12 TO SEP-12**

Name of Mines	Mining lease area (Ha)	Mined Out area (in Acres)	Backfilled area (in Acres)	Production (in MT)	Overburden Removal (in Cub.M.)
Shrengdag Bauxite Mines	155.81	6.52	6.6	133955.00	178177.00
Gurdari Bauxite Mines	584.19	7.5	7	165423.00	123688.52
Jalim & Sanai	12.14	0.9	0.1	15425.00	19280.00
Serangdag	140.06	2.5	1.6	52707.00	50247.00
Pakhar Buxite Mines	115.13	1.45	0.5	72233.00	124920.48
Pakhar Buxite Mines	8.09	0.5	0	3760.00	10500.00
Kujam-I	80.87	1.9	1.2	12998.00	3074.30
Kujam-II	157.38	8.33	6.43	134992.00	209109.49
Amtipani	190.95	7.68	6.74	67025.00	87430.64
Chiro-Kukud	152.57	2	1.2	36700.00	27525.00
Orsa Bauxite Mines	196.36	0	0	0.00	0.00
Hisri New	14.55	1.24	0	99651.00	51620.92
Bagru	75.41	1.78	1.5	84320	84477.09
<b>Minerals &amp; Minerals Limited</b>					
Pakhar Buxite Mines	109.507	5.5	3	67850.00	75608.15
Pakhar Buxite Mines	15.58	0.8	0.2	9075.00	28863.15