



Ref No: HIL/LHD/VP (M)/MoEF/ 638

Date: 28.11.12

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

Sub: **Compliance Report of EC conditions for Chiro-Kukud (152.57 ha) Bauxite Mining project of M/s Hindalco located in Gumla, Jharkhand for the period April' 2012 - Sep' 2012.**

Ref: **Environmental Clearance letter no J-11015/240/2006-IA II(M) dated 17<sup>th</sup> May 2007**

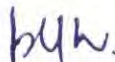
Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Chiro-Kukud (152.57 ha) Bauxite Mining project of M/s Hindalco** located in Gumla, Jharkhand for the period **April' 2012 - Sep' 2012.**

Hope you will find the same in order.

Thanking You

Yours Sincerely  
FOR HINDALCO INDUSTRIES LIMITED

  
(Bijesh Kumar Jha)  
VP (Mines)

Enclosure:- As Above

HINDALCO INDUSTRIES LIMITED  
Hindalco Complex  
Court Road, Lohardaga-835302  
Distt. Lohardaga (Jharkhand)

Telephone +91 6526 224112/224015/223113  
Fax +91 6526 224118

Website [www.hindalco.com](http://www.hindalco.com)

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

**CHIRO KUKUD BAUXITE MINES**

**Period : April'12 – Sep'12**

J-11015/240/2006-IA.II (M) Dated 17.5.2007

<b>Sl No</b>	<b>Conditions</b>	<b>Compliance Status</b>
<b>Specific Conditions</b>		
1	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa foundation Vs Union of India in writ petition (civil) no 460 of 2004, as may be applicable to this project	It will be complied with as per the final decision of Hon'ble Supreme Court.
2.	Environmental Clearance is subject to obtaining clearance from Wildlife (Protection) Act '1972 from the competent authority.	Willdlife Management plan has been accepted by Chief Wildlife Warden, Jharkhand vide letter no 75(vivid)/940 dated 22.10.2008.
3.	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Shall be complied.
4	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
5	Mining shall not intersect groundwater. The mine working shall be restricted to above ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	As the mining plan, mining is being carried out at shallow depth, at no point of time mining activities will intersect the ground water table.
6	The project proponent shall ensure that the mining shall be carried out in small blocks and at a given point of time active mining shall not be more than 2.0 ha.	complied
7.	The project proponent shall ensure that no natural water course shall be obstructed due to any mining operations.	Complied, no natural water course is being obstructed due to any mining operations.
8	Top soil, if any, shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Sequential backfilling and reclamation of the mined out area is being exercised during mining operation.

9.	The overburden generated during the initial year shall be kept as temporary dump. Concurrent backfilling starts from the 2 <sup>nd</sup> year onwards and there shall be no external dump at the end of the mine life.	Complied
10.	The entire excavated area of 86 ha shall be reclaimed, out of which 66 ha land shall be returned to rayats for agricultural purpose and in 20 ha plantation shall be raised. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six month basis.	Will be complied with progress of mining work
11	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. 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 (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine 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>	Will be complied with progress of mining work
12	Dimension of the retaining wall at the OB benches within the mine to check run-off and siltation should be based on rainfall data.	Will be complied
13	Plantation shall be raised in an area of 20.0 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.	Will be carried out with progress of mining activity.
14	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.	Will be complied
15	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new	Will be complied



	piezometers during the mining operation. The monitoring should be carried out four times in a year – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground water Authority and Regional Director Central Ground Water Board.	
16	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Agreed
17	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. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Vehicle engaged in mining operation are regularly checked and maintenance of vehicles is being done.
18	Drills should either be operated with dust extractors or should be equipped with water injection system.	Drilling is being done with water pouring in the holes for dust suppression, for jack hammer type drilling.
19	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.	Blasting at Mines - fixed blasting period of 12.00 Noon to 1.00 Pm on working days. All the precautionary and mitigative measures to control ground vibration and to arrest generation of fly rocks will be exercised .
20	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	Obtained & a copy is enclosed as <b>annexure</b>
21	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	There is no effluent discharge from Mine , hence ETP is not required to install. The sewage water from domestic uses is treated through septic tanks and soak pits.
22	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Leopard, Indian Wolf, Indian elephant, Indian small civet, Indian Python, etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.	Wildlife Management plan has been accepted by Chief Wildlife Warden, Jharkhand vide letter no 75(vivid)/940 dated 22.10.2008.

23	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.	Final mine closure plan will be submitted in appropriate time and will be intimated to concerned authority.
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**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 & Forest	Agreed.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Agreed.
3	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> 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.	Monitoring locations has been fixed and regular monitoring is being done. Monitoring Reports of AAQ data is attached as <b>Annexure</b>
4	Data on ambient air quality (RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> ) 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.	Complied. Monitoring Reports is attached as <b>Annexure</b>
5	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.	Water tanker with sprinkling facility have been provided along haul roads, loading unloading,& at transfer points
6	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.	Complied. PPE provided

7	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.	Presently, there is no generation of waste water from the mine.
8	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.	Complied. PPE provided Health survey will be done with progress of mining
9	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.	Complied. Copy enclosed
10	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.	Final mine closure plan will be submitted in appropriate time and will be intimated to concerned authority.
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.	Complied. . (Annexure).
12	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.
13	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, Bhubneshwar CPCB and State Pollution Control Board.	complied

14	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied
15	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.
16	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 Bhubneshwar.	Already done and copies submitted to Your office with earlier six monthly compliance report.





## 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/230/07/4-800

Dated- 17.4.12

#### CONSENT TO OPERATE

With reference to the application dated 19.05.2011 of G.M. (Operation), M/s Hindalco Industries Ltd; Court Road, P.O.+ Dist Lohardaga, I/C Chiru Kukud Bauxite Mines- (152.57 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/altered/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- Chiro Kukud, P.O.-Mahudanr, Dist- Latehar 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 plant 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.

MG

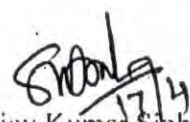
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8. That, he(they) shall monitor his(their) effluent(s), emission(s) and the ambient air, noise level regularly and shall submit the report to the Board in compliance of the condition laid in paragraph 7.
9. That, he(they) shall establish well equipped 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;  
I/C Chiru Kukud Bauxite Mines-(152.57 ha.),  
Court Road, P.O.+ Dist Lohardaga.

  
( Sanjay Kumar Sinha )  
Member Secretary.





TEST REPORT

Report No. : CA:GL:3120010528 DATE : 25/07/2012

JOE No. 1212804665

Report Control No.:3125011313

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 : CHIRO KUKUD BAUXITE MINES
LOCATION:JALJALI VILLAGE(BUFFER ZONE)
ATE OF SAMPLING 12 07 2012 TO 13 07 2012
SAMPLE RECD ON 18/07/2012
TEST START DATE 18/07/2012
TEST END DATE 25/07/2012

Table with 4 columns: TESTS, PROTOCOL, RESULT, REQUIREMENT/LIMIT. Rows include CARBON MONOXIDE (AT SITE), OXIDES OF NITROGEN (NOx), PARTICULATE MATTER(10), PARTICULATE MATTER(2.5), and SULPHUR DIOXIDE (SO2).

\* Analysed at site.

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

per pro SGS India Private Ltd.

Dr.Nemai Ghosh
Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010529 DATE : 25/07/2012

JOE No. : 1212804665

Report Control No. 3125011321

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 : CHIRO KUKUD BAUXITE MINES
LOCATION : MINES LEASE AREA(CORE ZONE)
ATE OF SAMPLING 12.07.2012 TO 13.07.2012
SAMPLE RECD ON 18/07/2012
TEST START DATE 18/07/2012
TEST END DATE 25/07/2012

Table with 5 columns: TESTS, PROTOCOL, RESULT, REQUIREMENT/LIMIT (As per CPCB Residential area), MIN, MAX. Rows include CARBON MONOXIDE (AT SITE), OXIDES OF NITROGEN (NOx), PARTICULATE MATTER(10), PARTICULATE MATTER(2.5), and SULPHUR DIOXIDE (SO2).

\* Analysed at site.

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

per pro SGS India Private Ltd.

Dr.Nemai Ghosh
Manager Laboratory

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## TEST REPORT

Report No. : CA:GL:3120010530

DATE : 25/07/2012

JOE No. : 1212804665

Report Control No. 3125011312

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 : CHIRO KUKUD BAUXITE MINES  
 LOCATION: SARAI DIH CAMP (BUFFER ZONE)  
 DATE OF SAMPLING 13.07.2012 TO 14.07.2012  
 SAMPLE RECD ON 18/07/2012  
 TEST START DATE 18/07/2012  
 TEST END DATE 25/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per CPCB (Residential area)	
			MIN	MAX
CARBON MONOXIDE (AT SITE)	GEN/SOP/CALLAB-88	<0.10 ppm *		1.7ppm(8h)
OXIDES OF NITROGEN (NO <sub>x</sub> )	IS 5182 PART 6:2006	8.1 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	80.2 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	33.0 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 site.

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

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Dr. Nimai Ghosh  
 Manager Laboratory

Page 1 of 1

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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, Vikhali (West), Mumbai-400083 Tel : (022) 25796421 to 28 Fax : (022) 25796431 to 35 www.sgs.com  
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TEST REPORT

Report No. : CA:GL:3120010532 DATE : 25/07/2012

JOE No. 1212804665

Report Control No.:3125011311

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 : CHIRO KUKUD BAUXITE MINES  
LOCATION: ORSAPAT VILLAGE(BUFFER ZONE)  
DATE OF SAMPLING 13.07.2012 TO 14.07.2012  
SAMPLE RECD ON 18/07/2012  
TEST START DATE 18/07/2012  
TEST END DATE 25/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per CPCB (Residential area)	
			MIN	MAX
CARBON MONOXIDE (AT SITE)	GEN/SOP/CALLAB-88	<0.10 ppm *		1.7ppm(8h)
OXIDES OF NITROGEN (NOx)	IS 5182 PART 6:2006	7.2 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	70.8 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	32.6 µg/m3		60 µg/m3
SULPHUR DIOXIDE (SO2)	IS 5182.PART 2:2001	< 4.0 µg/m3		80 µg/m3

\* Analysed at site.

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

per pro SGS India Private Ltd.

Dr. Nema Ghosh  
Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010564 DATE : 26/07/2012

JOE No. 1212804675 Control No. 3125011418

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
MARKS ON SAMPLE SITE:CHIRO KUKUD BAUXITE MINES
LOCATION BOREWELL HAND PUMP(NEAR CHIRO KUKUD MINES)
COLLECTED ON 12.07.2012
REGISTERED ON 18/07/2012
TEST START DATE 18/07/2012
TEST END DATE 26/07/2012

Table with 5 columns: TESTS, PROTOCOL, RESULT, REQUIREMENT/LIMIT As per IS 10500:1991(REAFF 1993), Desirable, Permissible. Rows include ALKALINITY (as CaCO3), ALUMINIUM (as Al), ANIONIC DETERGENTS (as MBAS), ARSENIC (as As), and BORON.

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## TEST REPORT

Report No. : CA:GL:3120010564

DATE : 26/07/2012

JOE No. : 1212804675

Control No. :3125011418

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per IS 10500:1991(REAFF 1993)	
			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)	37.17 mg/l	75mg/l	200mg/l
CHLORIDE ( as Cl)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	7.15 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)	<0.02 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	0.40 mg/l	1.0mg/l	1.5mg/l
IRON ( as Fe)	IS 3025:PART 53:2003 (BY ICPOES)	0.36 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)	14.73 mg/l	30mg/l	100mg/l

Page 2 of 4

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## TEST REPORT

Report No. : CA:GL:3120010564      DATE : 26/07/2012  
 JOE No. : 1212804675      Control No.:3125011418

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per IS 10500:1991(REAFF 1993)	
			Desirable	Permissible
MANGANESE	IS:3025(PART 59) 2006	0.06 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)	7.92 *	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)	153.52 mg/l	300mg/l	600mg/l

Page 3 of 4

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TEST REPORT

Report No. : CA:GL:3120010564 DATE : 26/07/2012

JOE No. : 1212804675 Control No : 3125011418

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS 10500:1991(REAFF 1993)	
			Desirable	Permissible
TURBIDITY( in NTU )	IS 3025 PART 10 1984(Reaff.2002)	2.40	5.0NTU	10NTU
ZINC (as Zn)	IS 3025 Part 49.1991(Reaff.2003) BY ICPOES	0.26 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff.2002)	222 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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TEST REPORT

Report No. : CA:GL:3120010565

DATE : 26/07/2012

JOE No. : 1212804675

Control No. :3125011419

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  
 MARKS ON SAMPLE SITE:CHIRO KUKUD BAUXITE MINES  
 LOCATION : BOREWELL HAND PUMP(NEAR SARAI DIH CAMP)  
 COLLECTED ON 13.07.2012  
 REGISTERED ON 18/07/2012  
 TEST START DATE 18/07/2012  
 TEST END DATE 26/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT As per IS 10500:1991(REAFF 1993)	
			Desirable	Permissible
ALKALINITY (as CaCO <sub>3</sub> )	IS 3025:PART 23 1986(Reaff.1998)	119.17 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

Page 1 of 4

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TEST REPORT

Report No. : CA:GL:3120010565 DATE : 26/07/2012

JOE No. : 1212804675 Control No. 3125011419

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)	25.86 mg/l	75mg/l	200mg/l
CHLORIDE ( as Cl)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	5.72 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)	0.29 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)	7.85 mg/l	30mg/l	100mg/l

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**TEST REPORT**

<b>Report No. : CA:GL:3120010565</b>	<b>DATE : 26/07/2012</b>
<small>JOE No. : 1212804675</small>	<small>Control No.:3125011419</small>

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per IS 10500:1991(REAFF 1993)	
			Desirable	Permissible
MANGANESE	IS:3025(PART 59) 2006	0.02 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)	7.76 *	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)	96.96 mg/l	300mg/l	600mg/l

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TEST REPORT

Report No. : CA:GL:3120010565 DATE : 26/07/2012

JOE No. : 1212804675

Control No. 3125011419

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	0.72	5.0NTU	10NTU
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.01 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff 2002)	166 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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## TEST REPORT

Report No. : CA:GL:3120010819-22

Date : 23.07.2012

JQE No 1212804776

Report Control No 312501123-26

### 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** : CHIRO-KUKUD BAUXITE MINES  
**PROTOCOL** : GENSOP/CALLAB-116  
**TEST START DATE** : 20.07.2012  
**TEST END DATE** : 23.07.2012

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 (Tata Hitech, Ex 200 ILC)	12.07.2012 (11:00 Hrs)	79	75
2	DUMPER	12.07.2012 (11:10 Hrs)	78	75
3	WAGON DRILL (IR-KORODIL, LM-100 )	12.07.2012 (11:30 Hrs)	88	75
4	COMPRESSOR (ATLAS COPCO XAH -20)	12.07.2012 (11:40 Hrs)	88	75

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

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

Checked by

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

per pro SGS India Private Ltd.

*Dr. Nemai Ghosh*  
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 "Bijesh Kumar Jha".

Bijesh Kumar Jha  
VP (Mines)

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

HINDALCO INDUSTRIES LIMITED

Hindalco Complex  
Court Road, Lohardaga-835302  
Distt. Lohardaga (Jharkhand)

Telephone +91 6526 224112/224015/223113  
Fax +91 6526 224118

Website [www.hindalco.com](http://www.hindalco.com)

**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