



Ref No: HIL/LHD/VP (M)/MoEF/ 632

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 Kujam-II Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April' 2012 - Sep' 2012.**

Ref: **Environmental Clearance letter no J-11015/242/2005-IA II(M) dated 14<sup>th</sup> August 2006**


Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Kujam-II** 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

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

**KUJAM - II BAUXITE MINES ( 157.38 Ha)**

**Period : April'12 – Sep'12**

**MoEF Environment Clearance ref. no. : J – 11015/242/2005 – IA.II(M) dated 14 Aug'06**

<b>Sl No</b>	<b>Conditions</b>	<b>Compliance Status</b>
<b>Specific Conditions</b>		
1	All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.	Complied
2	The mining operations shall not intersect groundwater table. Prior approval of the MoEF and CGWA shall be obtained for mining below water table.	The mining operation is confined to shallow depth (20m max) and as per the study conducted by authorized agency [Center for Ground Water Studies, Kolkata (WB)] during Nov.-Dec '06, the ground water level is in the range of 80-100m from ground level.
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.	This provision has been taken care of during land acquisition with permission of competent authority i.e. concerned Deputy Commissioner (D.C.) and consent of Raiyat (Land Owner) for 20 years period. All the lands concerned are non-agricultural land <b>(Documents already submitted)</b>
4	Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	It is being ensured & the top soil is being used for reclamation & rehabilitation of mined out areas. Details of land reclamation is enclosed as Annexure
5	The waste generated in the initial period shall be dumped temporarily and backfilled in the mined out area. There shall be no permanent external OB dump in the project area. Concurrent backfilling should start from the fifth year onwards. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.	complied
6	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. The water so collected should be utilized for watering the mine	Catch drains, siltation ponds, garland drains have been planned to construct in commensuration with the progress of mining activities.

	area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. 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 settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.	
7	Plantation shall be raised in an area of 43.5 ha including a green belt of adequate width by planting the native species around the ML area, roads, etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.	Plantation is being carried out as per the stipulated condition.
8	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.	A study has been conducted by Centre for Ground Water Studies, Kolkata, a reputed agency in the field. The same is being studied by us and will be sent to Regional Director, Central Ground Water Board along with our observation for his opinion prior to implementation of scheme.
9	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.	It is being monitored. Monitoring report is enclosed as <b>Annexure</b>
10	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	As per Lease agreement, we are having permission of DC for use of water.
11	The project proponent shall monitor the spring discharge on long term basis (at least one major spring) both in terms of quantity and quality of water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.	Planned to comply at appropriate time
12	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining	To keep vehicular emissions in vehicles are periodically checked & repaired. All measures are being taken to control

	operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	vehicular emission.
13	Drills should either be operated with dust extractors or should be equipped with water injection system	Complied.
14	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented	Blasting time is fixed from 12.00 Noon to 1.00PM. and strictly followed. All mitigative efforts are being done to minimize vibration and control fly rocks due to blasting.
15	Consent to operate should be obtained from SPCB prior to start of production of mine	Consent obtained , <b>(Annexure)</b>
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	No colony is proposed. The domestic waste water from drinking water facility will be treated through soak pit and sullage will be used as manure. There will be no wastewater generation from Mining.
17	Land oustees and land loser/affected people should be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of project Affected Families (NPRR), 2003	All land acquisition activities is done as per CNT Act and project affected people / families as have been compensated and rehabilitated as per State Government's R&R Policy which is in line with NPRR,2003.
18	The higher benches of the excavated void to be converted into water reservoir shall be terraced and afforested to stabilize the slopes. Peripheral fencing shall be done along the excavated area.	Planned to implement the same at appropriate time.
19	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Final mine Closure Plan will be submitted at appropriate time. Presently we are having approved progressive mine Closure Plan

## 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.	Agreed
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	Agreed.
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 departments.	Agreed. To be carried out at appropriate time.
4	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO <sub>2</sub> , NO <sub>x</sub> monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Complied. Monitoring report enclosed.
5	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 Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	Monitoring activity initiated, Report annexed.
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water tanker with sprinkling facility have been provided along haul roads, loading unloading,& at transfer points.
7	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	PPEs provided to all the worker employed in the mine.
8	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap	Presently there is no waste water generated from mine.

	should be installed before discharge of workshop effluents.	
9	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Complied PPE's provided and also periodic training on health and safety issues. Occupational health survey has also been done periodically.
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) already formed and informed.
11	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Final mine closure plan will be submitted at appropriate time. Presently we are having approved progressive mine closure plan.
12	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Separate budget has been prepared for the purpose. Copy enclosed
13	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.	Vide Point no. 11 above.
14	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.
15	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom and suggestion / representation has been received while processing the proposal.	Complied
16	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's	Not applicable

	office/ Tehsildar's Office for 30 days.	
17	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <b>http://envfor.nic.in</b> and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. <b>(Documents already submitted)</b>



**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/C-8'12 / 4.796

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 Kujam II Bauxite Mines-157.38 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 1,50,000 TPA of Bauxite ore At- ~~Bagga Hills~~ <sup>Kujam II</sup>, 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 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.


M/G



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 Kujam II Bauxite Mines-157.38 Ha.)  
Court Road, P.O. + Dist- Lohardaga.

  
( Sanjay Kumar Sinha )  
Member Secretary.



## TEST REPORT

Report No. : CA:GL:3120010719

Date : 19.07.2012

JOL No 1212804732

Report Control No 3125010860

### 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>	<b>MINES DIVISION, LOHARDAGA, JHARKHAND, PIN – 835 302</b>
<b>SAMPLING SITE</b>	<b>GURDARI/KUJAM-II/AMTIPANI/KUJAM-I/BAUXITE MINES(NETERHAT PLATEAU)</b>
<b>PROTOCOL</b>	<b>GENSOP/CALLAB/116</b>
<b>DATE OF SAMPLING</b>	<b>09.07.2012 TO 10.07.2012</b>
<b>TEST START DATE</b>	<b>19.07.2012</b>
<b>TEST END DATE</b>	<b>19.07.2012</b>

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 (NEAR GURDARI OFFICE)	62	54	75	70

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

- Note: (i) The value is the Leq of One Hundred Sixty-nine 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 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:3120010815-18

Date : 23.07.2012

COF No 1212804776

Report Control No 3125011119-22

### SAMPLE DRAWN BY SGS INDIA PRIVATE LTD.

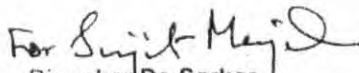
**SAMPLE DESCRIPTION** : MEASUREMENT OF NOISE LEVEL  
**NAME OF THE CLIENT** : M/S. HINDALCO INDUSTRIES LIMITED  
**ADDRESS** : MINES DIVISION, LOHARDAGA, JHARKHAND, PIN – 835 302  
**SAMPLING METHOD** : INSTRUMENTAL, USING SOUND LEVEL METER  
**SAMPLING SITE** : GURDARI/KUJAM-II/KUJAM-I/AMTIPANI BAUXITE MINES(NETERHAT-PLATEAU)  
**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 (L8T90)	09.07.2012 (10:00 Hrs)	80	75
2	DUMPER (H-6DTI-1613-6)	09.07.2012 (10:10 Hrs)	78	75
3	COMPRESSOR( ATLAS CAPCOXAH-17)	09.07.2012 (10:20 Hrs)	89	75
4	WAGON DRILL	09.07.2012 (10:30 Hrs)	89	75

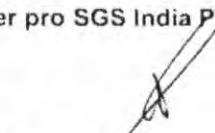
\*\*\*\*End of Report\*\*\*\*

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

For   
Dipankar De Sarkar  
Asst. Manager (Operations)

per pro SGS India Private Ltd.

  
Dr. Nerrai Ghosh  
Manager-Laboratory

Page 1 of 1

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TEST REPORT

Report No. : CA:GL:3120010521

DATE : 24/07/2012

JOE No. : 1212804665

Report Control No. 3125011196

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:GURDARI/KUJAM-II/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)
LOCATION:CHATAM VILLAGE(BUFFER ZONE)

DATE OF SAMPLING 07 07 2012 TO 08 07 2012
SAMPLE RECD ON 18/07/2012
TEST START DATE 18/07/2012
TEST END DATE 24/07/2012

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:3120010522

DATE : 25/07/2012

JOE No. : 1212804665

Report Control No.: 3125011317

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: GURDARI/KUJAM-II/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)
LOCATION: POLLPOL VILLAGE(BUFFER ZONE)

DATE OF SAMPLING 08.07.2012 TO 09.07.2012
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.

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

Dr. Nimai Ghosh
Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010523

DATE : 25/07/2012

JOE No. : 1212804665

Report Control No. 3125011316

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:GURDARI/KUJAM-III/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)  
LOCATION :SAKUAPANI VILLAGE(BUFFER ZONE)

DATE OF SAMPLING 08.07.2012 TO 09.07.2012  
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	6.9 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	75.8 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	25.1 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.Nemai Ghosh  
Manager Laboratory

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Member of the SGS Group (SGS SA)



TEST REPORT

Report No. : CA:GL:3120010524

DATE : 25/07/2012

JOE No. : 1212804665

Report Control No.:3125011319

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:GURDARI/KUJAM-II/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)  
LOCATION:KUJAM-II(COREZONE)

DATE OF SAMPLING 09.07.2012 TO 10.07.2012

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	5.4 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	93.6 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	46.1 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.Nemai Ghosh  
Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010525

DATE : 25/07/2012

JOE No. : 1212804665

Report Control No.:3125011320

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: GURDARI/KUJAM-II/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)

LOCATION : KUJAM-1(COREZONE)

DATE OF SAMPLING 09.07.2012 TO 10.07.2012

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	6.7 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	71.3 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	30.9 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.Nimai Ghosh  
Manager Laboratory

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**TEST REPORT**

**Report No. : CA:GL:3120010527**

**DATE : 25/07/2012**

JOE No. : 1212804665

Report Control No.:3125011314

**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:GURDARI/KUJAM-III/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)  
LOCATION:RAJADERA(BUFFER ZONE)**

**DATE OF SAMPLING 10.07.2012 TO 11.07.2012**

**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	4.5 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	76.7 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	31.1 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.Nemai Ghosh**  
Manager Laboratory

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**TEST REPORT**

**Report No. : CA:GL:3120010519**

**DATE : 24/07/2012**

JOE No 1212804665

Report Control No 3125011198

**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 GURDARI/KUJAM-II/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)  
 LOCATION GURDARI(COREZONE)

**DATE OF SAMPLING** 06 07 2012 TO 07 07 2012

**SAMPLE RECD ON** 18/07/2012

**TEST START DATE** 18/07/2012

**TEST END DATE** 24/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			As per CPCB (Residential area)	
			MIN	MAX
CARBON MONOXIDE (AT SITE)	GEN/SOP/CALLAB-88	<0.1 ppm*		1.7 ppm(8h)
OXIDES OF NITROGEN (NOx)	IS 5182 PART 6 2006	6.7 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS 5182/PART 23:2006	93.6 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	40.5 µg/m3		60 µg/m3
SULPHUR DIOXIDE (SO2)	IS 5182 PART 2 2001	< 4.0g/m3		80 µg/m3

\* Analysed at site

..... End of Report .....

per pro SGS India Private Ltd.

*(Signature)*  
**Dr.Nemai Ghosh**  
 Manager Laboratory

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**TEST REPORT**

**Report No. : CA:GL:3120010520**

**DATE : 24/07/2012**

JOE No : 1212804665

Report Control No 3125011197

**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 GURDARI/KUJAM-II/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)  
 LOCATION AMTIPANI(CORE ZONE)

**DATE OF SAMPLING** 07 07 2012 TO 08 07 2012  
**SAMPLE RECD ON** 18/07/2012  
**TEST START DATE** 18/07/2012  
**TEST END DATE** 24/07/2012

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	4.1 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS 5182(PART 23)2006	98.0 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50) Appendix L	42.9 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

*(Signature)*  
**Dr.Nemai Ghosh**  
 Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010526

DATE : 25/07/2012

JOE No. : 1212804665

Report Control No.:3125011315

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:GURDARI/KUJAM-II/AMTIPANI/KUJAM-I BAUXITE MINES(NETERHAT PLATEAU)
LOCATION :DMAIL VILLAGE(BUFFER ZONE)
DATE OF SAMPLING 10.07.2012 TO 11.07.2012
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.Nimai Ghosh
Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010562

DATE : 26/07/2012

JOE No 1212804675

Control No 3125011421

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

\* RKS ON SAMPLE SITE:GURDARI KUJAM-II/AMTIPANE/KUJAM-1  
BAUXITE MINES(NETERHAT PLATEAU)  
LOCATION GURDARI VILLAGE(BOREWELL HAND PUMP)

COLLECTED ON 10.07.2012

REGISTERED ON 18/07/2012

TEST START DATE 18/07/2012

TEST END DATE 26/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
			<u>As per IS</u> <u>10500:1991(REAFF</u> <u>1993)</u>	
ALKALINITY (as CaCO3)	IS 3025 PART 23 1986(Reaff 1998)	19.60 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:3120010562

DATE : 26/07/2012

JOE No. : 1212804675

Control No.:3125011421

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)	7.27 mg/l	75mg/l	200mg/l
CHLORIDE ( as Cl)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	22.15 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	0.05 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)	0.75 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)	2.21 mg/l	30mg/l	100mg/l

Page 2 of 4

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TEST REPORT

Report No. : CA:GL:3120010562

DATE : 26/07/2012

JOE No. : 1212804675

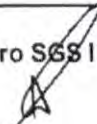
Control No. :3125011421

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)	16.2	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)	96 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:3120010562

DATE : 26/07/2012

JOE No. : 1212804675

Control No.:3125011421

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			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)	12.60 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)	6.84 *	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)	27.27 mg/l	300mg/l	600mg/l

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**TEST REPORT**

**Report No. : CA:GL:3120010563**

**DATE : 26/07/2012**

JOE No. 1212804675

Control No.:3125011417

**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**

**TESTS ON SAMPLE SITE GURDARI KUJAM-II/AMTIPANE/KUJAM-1**  
**BAUXITE MINES(NETERHAT PLATEAU)**  
**LOCATION : CHIRODIH VILLAGE**

**COLLECTED ON 10.07.2012**

**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)	100.35 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:3120010563

DATE : 26/07/2012

JOE No. : 1212804675

Control No. :3125011417

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)	24.24 mg/l	75mg/l	200mg/l
CHLORIDE ( as Cl)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	4.76 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)	0.20 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)	7.85 mg/l	30mg/l	100mg/l

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TEST REPORT

Report No. : CA:GL:3120010563

DATE : 26/07/2012

JOE No - 1212804675

Control No.:3125011417

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			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)	6.27 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)	6.76 *	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)	92.92 mg/l	300mg/l	600mg/l

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**TEST REPORT**

**Report No. : CA:GL:3120010563**

**DATE : 26/07/2012**

JOE No. : 1212804675

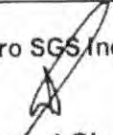
Control No. : 3125011417

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	1.06	5 ONTU	10NTU
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.04 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff.2002)	134 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:3120010574

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011492

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 GURDARI/KUJAM-II/AMTIPANI/KUJAM-1 BAUXITE MINES  
(NETARHAT PLATEAU)

COLLECTED ON 10.07.2012  
LOCATION : NORTH KOEL RIVER(PATHIYAGNI VILLAGE)

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 CaCO3)	IS 3025:PART 23 :1986(Reaff.1998)	14.11 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:3120010574

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011492

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)	4.44 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)	<0.02 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)	0.34 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:3120010574

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011492

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			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)	3.39 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)	6.54 *	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)	4.15 mg/l	200mg/l	400mg/l
TASTE	IS 3025:PART 7 :1984(Reaff.2002)	Agreeable	Agreeable	.
Total Coliforms	IS 1622:1981(Reaff.2003)	22 MPN/100ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	16.16 mg/l	300mg/l	600mg/l

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TEST REPORT

Report No. : CA:GL:3120010574

DATE : 27/07/2012

JOE No. : 1212804679

Control No.:3125011492

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	36.8	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)	34 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:3120010580

DATE : 28/07/2012

JOE No. : 1212804680

Control No.:3125011552

**SAMPLE COLLECTED BY SGS**

**SAMPLE IDENTIFIED AS : DRINKING WATER**

COMPANY NAME HINDALCO INDUSTRIES LIMITED (MINES DIVISION)  
 ADDRESS LOHARDAGA, JHARKHAND  
 CITY 835302  
 SAMPLING METHOD APHA 1060B/9060A  
 SAMPLE DESCRIPTION DRINKING WATER  
 SAMPLE CONDITION IN PLASTIC AND STERILISED BOTTLE  
 SAMPLE QTY. 6.5L APP  
 MARKS ON SAMPLE SITE : GURDARI/KUJAM -II/AMTIPANI/KUJAM -I BAUXITE MINES  
 (NETARHAT PLATEAU)  
 LOCATION : SPRING WATER (KUJAM VILLAGE)  
 COLLECTED ON 10.07.2012  
 REGISTERED ON 18/07/2012  
 TEST START DATE 18/07/2012  
 TEST END DATE 28/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ALKALINITY (as CaCO <sub>3</sub> )	IS 3025:PART 23 :1986(Reaff.1998)	12.54 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:3120010580

DATE : 28/07/2012

JOE No. : 1212804680

Control No.:3125011552

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)	4.44 mg/l	75mg/l	200mg/l
CHLORIDE ( as Cl)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	<2.0 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)	<1.0 mg/l	30mg/l	100mg/l

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TEST REPORT

Report No. : CA:GL:3120010580

DATE : 28/07/2012

JOE No. : 1212804680

Control No.:3125011552

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
MANGANESE	IS:3025(PART 59) 2006	<0.005 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)	2.27 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)	6.86 *	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)	14.14 mg/l	300mg/l	600mg/l

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## TEST REPORT

Report No. : CA:GL:3120010580

DATE : 28/07/2012

JOE No. : 1212804680

Control No.:3125011552

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
			<b>As per IS 10500:1991(REAFF 1993)</b>	
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	3.36	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)	24 mg/l	500mg/l	2000mg/l
Based on the above parameters the sample complies with maximum desirable and maximum permissible limit as per IS:10500:1991 (Reaff 1993) , BDL=Below Detection Limit ; DL=Detection Limit				
* 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 blue 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