



Ref No: HIL/LHD/VP (M)/MoEF/ 625

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 Pakhar(8.09 ha) Bauxite Mining project of M/s Hindalco located in Lohardaga, Jharkhand for the period April' 2012 - Sep' 2012.**

Ref: **Environmental Clearance letter no J-11015/135/2006-1A II(M) dated 24<sup>th</sup> January 2007**


Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar(8.09 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

  
(Bijesh Kumar Jha)  
VP (Mines)

Enclosure: - As Above

Compliance of conditions laid down in Environmental Clearance

**PAKHAR (8.09 ha)BAUXITE MINES**

**Period : April'12 – Sep'12**

J-11015/135 /2006-IA.II (M) Dated 24.1.2007

<b>Sl No</b>	<b>Conditions</b>	<b>Compliance Status</b>
<b>Specific Conditions</b>		
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Complied.
2	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.
3	Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Shallow depth mining is being done & the ground water table much below the working depth. Hence, there will be no intersecting of the ground water table due to mining activities.
4	The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operation.	It is being ensured .No natural water course is obstructed during mining.
5	Top soil 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 are being exercised during mining operation. Whenever backfilling will be done to the mined out area, Topsoil will be used for backfilling to reclaim and restore the damage area upto the extent possible.(enclosed Annexure).
6	The waste generated shall be concurrently backfilled in the mined out area. There shall be no external OB dump. 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 monthly basis.	Sequential backfilling and reclamation of the mined out area are being exercised during mining operation.. Year wise backfill data is being submitted.(enclosed Annexure)

7	<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>	<p>No run-off is generated from mining activities. however to collect &amp; manage rain water during monsoon, part of mined out area is used as settling tank for the runoff. Sediment rain water is being used for watering the mine area, roads, green belt development etc .</p>
8	<p>Plantation shall be raised in an area of 6.35 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.</p>	<p>In 2012, plantation over approx. 2.5 Ha area (3500 saplings) has been done in Pakhar area. Rest to be complied during project period.</p>
9	<p>The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.</p>	<p>A plan is drawn on the basis of discussions with Scientists of State unit office of Central Ground Water Board, Ranchi to implement suitable conservation measures to augment ground water resources in the area and is also submitted to the Regional Director, Central Ground Water Board, Patna, for his further suggestions. Recommendation of CGWB shall be implemented to augment the ground water resources of the area. Copy of letter already submitted .</p>
10	<p>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.</p>	<p>Complied Monitoring report is being submitted as <b>Annexure</b></p>



11	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Agreed.
12	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.	To keep vehicular emissions in control, company vehicles are periodically checked & repaired. All transporters have been instructed to obtain PUC certificate for their vehicles
13	Drills should either be operated with dust extractors or should be equipped with water injection system.	Drilling is done with water pouring in the holes intermittently for dust suppression which is the best method for jackhammer type drilling.
14	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 is done at fixed blasting period of 12.00 Noon to 1.00 Pm on working days. Mobile mining activities is stopped during blasting. All the precautionary and mitigative measures to control ground vibration and to arrest generation of fly rocks is being exercised.
15	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	Obtained & copy submitted as <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.	There is no effluent discharge from Mine, hence ETP has not been installed. The sewage water from domestic uses is being collected through individual septic tanks & soak pits. Sludge is collected to an integrated soak pit.
17	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as 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.	Action plan for conservation of flora and fauna spotted in the study area has been prepared based on discussions with D.F.O of the area for implementation and a copy of the same is submitted to the D.F.O, on receipt of any suggestion to our action plan the same will be intimated to MOEF. A copy of Action plan drawn and of letter for submission to DFO is all ready submitted to regional office.
18	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 dully approved by Indian Bureau of Mines exists with us. The same has been submitted to Regional office.

### 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	Being Complied.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Excavation of Over Burden and Bauxite is being done as per the approved calendar plan. Details of excavation, quantum of mineral, OB, etc have been furnished for the financial year 11-12 and scan copy enclosed.
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 have been fixed after due consultation of SPCB and regular monitoring is being carried out with the available in-house facilities. Monitoring Reports is enclosed.
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.	Regular monitoring is being carried out. Monitoring Reports is enclosed in <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 have been provided for sprinkling of water on haul roads and are generally being engaged at the places where active mining is in progress to contain fugitive dust. Water spraying at dust prone areas is also being done manually.
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.	Noise monitoring is being done regularly at various locations of the work zone area and a monitoring report for the period of reporting six monthly compliance is enclosed. Workers engaged in operation of HEMMs, etc have also been provided with PPEs such as ear plug and ear muffs.

7	<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>	<p>Complied There is no effluent discharge from Mine. Workshop has an Oil Catchment Pit to trap oil and grease.</p>
8	<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>	<p>Complied. Use of Personal Protective Equipment (PPE) by the individuals is being ensured. All the mine workers are being regularly and periodically health checkup for any contraction of diseases due to exposure in dusty and noisy areas.  Training on safety, health and environmental aspects of mining is being regularly imparted through VT training centre and also through various other training programmes conducted by the State Government, recognized agencies, etc</p>
9	<p>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.</p>	<p>Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy enclosed as Annexure</p>
10	<p>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.</p>	<p>Not applicable. The mine is running since 1976</p>
11	<p>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.</p>	<p>Statement of budgetary provision and actual expenses for environmental protection measure is enclosed. It is once again reiterated that the funds so ear marked shall not be diverted for any other purposes other than it is committed at the beginning of the financial year.(Annexure).</p>
12	<p>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.</p>	<p>Complied</p>
13	<p>A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been</p>	<p>Complied</p>

	received while processing the proposal.	
14	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 .
15	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.	Complied. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office.





# 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/50/07 / 4-804

Dated- 17-4-12

### CONSENT TO OPERATE

With reference to the application dated 27.02.2012 of G.M. (Operation), M/s Hindalco Industries Ltd; Court Road, P.O.+ Dist Lohardaga, I/C Pakhar Bauxite Mines-(08.09 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 <sup>0.8 lps</sup> TPA of Bauxite ore At- Pakhar, P.O -Kisko, Dist- Lohardaga for the period from 01.01.2012 to 31.12.2012 with the following conditions :

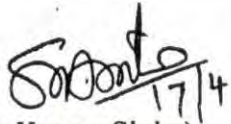
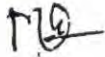
1. That. he(they) shall make any alteration, addition, deletion or modification in the ~~mine~~ <sup>mines</sup> without the prior clearance from the Board.
2. That. he(they) shall abide by the obligations provided under section 24, 31 and 33A of the Water (Prevention & Control of Pollution) Act, 1974 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 & Transboundry 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.

P/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 Pakhar Bauxite Mines (8.09 Ha.),**  
**At- Pakhar, P.O. – Kisko, Dist- Lohardaga.**

  
 ( Sanjay Kumar Sinha )  
**Member Secretary.**  


## TEST REPORT

Report No. : CA:GL:3120010507

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011108

**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:PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.507)/  
 BAUXITE MINES PAKHAR PLATEAU, LOCATION: PATRATOLI VILLAGE  
 DATE OF SAMPLING 29.06.2012 TO30-06-2012  
 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	4.6 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	89.5 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	42.4 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:3120010506

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011107

**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:PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.507)/  
BAUXITE MINES PAKHAR PLATEAU, LOCATION:SEMARDIH VILLAGE

DATE OF SAMPLING 28.06.2012 TO29.06.2012

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	8.5 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	75.1 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	28.7 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

Page 1 of 1

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## TEST REPORT

Report No. : CA:GL:3120010505

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011106

**SAMPLE IDENTIFIED AS : AMBIENT AIR**  
**SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED**

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:PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.507)/**  
**BAUXITE MINES PAKHAR PLATEAU, LOCATION: KEKRANG VILLAGE**  
 DATE OF SAMPLING **28.06.2012 TO 29.06.12**  
 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	7.5 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	81.0 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	39.0 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. Nimai Ghosh**  
 Manager Laboratory

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TEST REPORT

Report No. : CA:GL:3120010504

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011105

**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:PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.507)/  
BAUXITE MINES PAKHAR PLATEAU, LOCATION: PAKHAR 38.50(COREZC  
DATE OF SAMPLING 26.06.2012  
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	7 µg/m3		80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	77.6 µg/m3		100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	24.6 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

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## TEST REPORT

Report No. : CA:GL:3120010503

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011104

### 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:PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.507)/  
 BAUXITE MINES PAKHAR PLATEAU, LOCATION:PAKHAR-115.13(PAKHAI)  
 DATE OF SAMPLING 26.06.2012  
 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	5.3 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	89.9 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	35.4 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. Nimai Ghosh  
 Manager Laboratory

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## TEST REPORT

Report No. : CA:GL:3120010502

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011103

### 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:PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.507)/  
 BAUXITE MINES PAKHAR PLATEAU, LOCATION: PAKHAR-84.38  
 DATE OF SAMPLING 25.06.2012  
 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	6.0 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	89.1 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	37.3 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:3120010501

DATE : 23/07/2012

JOE No. : 1212804665

Report Control No.:3125011102

### 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:PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.507)/  
 BAUXITE MINES PAKHAR PLATEAU, LOCATION: PAKHAR 270.509(BKB)  
 DATE OF SAMPLING 25.06.2012  
 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	7.3 µg/m <sup>3</sup>		80 µg/m <sup>3</sup>
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	85.8 µg/m <sup>3</sup>		100 µg/m <sup>3</sup>
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	36.2 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:3120010807-08

Date : 20.07.2012

JOF No: 1212804776

Report Control No: 3125010934-35

### 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** : PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHER(109.509)/BAUXITE MINES( PAKHER PLTEAU)  
**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	DAMPER (OR-14R-0160)	25.06.2012 (15:20 Hrs)	79	75
2	POCKLEN (EC 210 BLC)	25.06.2012 (15:30 Hrs)	80	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 Sigit Manj...*  
**Dipankar De Sarkar**  
Asst. Manager (Operations)

per pro SGS India Private Ltd.

*Dr. Nemai Ghosh*  
**Dr. Nemai Ghosh**  
Manager-Laboratory

Page 1 of 1

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TEST REPORT

Report No. : CA:GL:3120009661

DATE : 10/07/2012

JOE No. : 1212804262

Control No.:3125010227

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,STERILISED BOTTLE  
SAMPLE QTY. 5.5L APP  
MARKS ON SAMPLE SITE : PAKHAR (8.09)/PAKHAR(15.58)/PAKHAR(115.13)/  
PAKHAR (109.507)/ BAUXITE MINES PAKHAR PLATEAU  
LOCATION : SPRING NEAR PAKHAR VILLAGE  
COLLECTED ON 26.06.2012  
REGISTERED ON 02/07/2012  
TEST START DATE 02/07/2012  
TEST END DATE 10/07/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT	
			Desirable	Permissible
ALKALINITY (as CaCO <sub>3</sub> )	IS 3025:PART 23 :1986(Reaff.1998)	<5.0 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:3120009661

DATE : 10/07/2012

JOE No. : 1212804262

Control No.:3125010227

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)	<1.0	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)	0.12 mg/l	0.3mg/l	1 mg/l
LEAD (as Pb)	IS 3025:PART 47:1994(Reaff.2003) BY ICPOES	0.01 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:3120009661

DATE : 10/07/2012

JOE No. : 1212804262

Control No.:3125010227

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)	<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)	6.85*	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)	<1.0 mg/l	300mg/l	600mg/l

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TEST REPORT

Report No. : CA:GL:3120009661 DATE : 10/07/2012

JOE No. : 1212804262

Control No.:3125010227

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)	1.32	5.0NTU	10NTU
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.13 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff.2002)	<10 mg/l	500mg/l	2000mg/l
Remarks : 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 Abs=Absent * Analyzed 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:3120010717

Date : 19.07.2012

JOE No. 1212804732

Report Control No. 3125010862

### 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>PAKHAR(8.09)/PAKHAR(15.58)/PAKHAR(115.13)/PAKHAR(109.509)BAUXITE MINES ( PAKHAR PLATEAU )</b>
<b>PROTOCOL</b>	<b>GENSOP/CALLAB/116</b>
<b>DATE OF SAMPLING</b>	<b>25.06.2012 TO 26.06.2012</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 SITE OFFICE)	59	52	75	70

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

Note: (i) The value is the Leq of One Hundred Sixty-Eight 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*  
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 "bkh".

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