

Ref No: HIL/LHD/VP (M)/MoEF/ 117

Date: 22.05.13

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-I Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period Oct' 2012 - March' 2013.

Ref: Environmental Clearance letter no J-11015/240/2005-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-I** (80.87 Ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period Oct' 2012 - March' 2013.

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 - I BAUXITE MINES (80.87 Ha) Period: Oct'12 - March'13

# MoEF Environment Clearance letter Ref: No. J-11015/240/2005-IA.II(M) dated 14 Aug'06

Sl	Conditions	Compliance Status
No	Specific Conditions	
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 within shallow depth (20m max) and as per the study conducted by authorized agency [Center for Ground Water Studies, Kolkata (WB)] during NovDec '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 and will return the land so acquired as per the norms set by D.C. in land purchased agreement. (Documents already submitted)
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.	Top soil is being stacked separately for reclamation and rehabilitation of mined out areas with progress of Mining.
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.	Initial dumping is being done, with progress of mining the mined out voids will be backfilled using the dumped material. Concurrent backfilling will be done from fifth year of mining.  Afforestation will be done over reclaimed area for rehabilitation.

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 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.	Catch drains, siltation ponds, garland drains have been planned to construct in commensuration with the progress of mining activities.
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 will be carried out as per the stipulated condition with progress of mining.
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.	complied
10	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Agreed. Water cess is being paid on regular basis to JSPCB.
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	Complied.

12	water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.  Vehicular emissions should be kept under control	Regular maintenance of vehicles are
	and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are covered with a tarpaulin.
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 at Mines is done at fixed blasting period i.e. 12.00 Noon to 1.00 PM on working days. Mobile mining activities are not being practiced during blasting. All the precautionary and mitigative measures to control ground vibration and to arrest fly rocks is being exercised.
15	Consent to operate should be obtained from SPCB prior to start of production of mine	complied (enclosed as annexure)
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	Considering the practical requirement, 2-3 nos soak pits have been planned to construct during the establishment of colony. Presently there is no workshop hence no ETP is required.
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 with permission of competent authority i.e. concerned Deputy Commissioner (D.C.) and consent of Raiyat (Land Owner) for 20 years period. There is no displacement involved & hence R&R is not applicable.
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 with progress of mining.
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	Complied Mining is as per approved plan.
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.	Complied.
4	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO2, NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Complied. Report annexed
5	Data on ambient air quality (RPM, SPM, SO2, NOx) 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.	Complied. Report annexed
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and	Water spraying arrangement on haul roads, loading and unloading and at transfer points is being carried out on

	unloading and at transfer points should be provided and properly maintained.	regular basis.
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.	PPE's provided to workers at noise prone areas
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 should be installed before discharge of workshop effluents.	Agreed, will be taken care of with progress of mining.
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.	PPE's provided to workers at dusty areas Periodic health checks up/ occupational health checkup are in practice for the workers at Mine.
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 with qualified personals and informed. (enclosed as annexure)
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	Agreed.
	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.	
15	A copy of clearance letter will be marked to	Complied
	concerned Panchayat / local NGO, if any, from	
	whom and suggestion / representation has been	
	received while processing the proposal.	
16	State Pollution Control Board should display a	Complied
	copy of the clearance letter at the Regional	
	office, District Industry Centre and Collector's	
	office/ Tehsildar's Office for 30 days.	
17	The project authorities should advertise at least	Complied. (Documents already
	in two local newspapers widely circulated, one	submitted)
	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 httD:/	
	/envfor.nic.in and a copy of the same should	
	be forwarded to the Regional Office of this	
	Ministry located Bhubneshwar.	



Report No.: CA:GL:3120015207

DATE: 19/10/2012

JOE No.: 1212806597

Report Control No.:3125016390

SAMPLE DRAWN BY SGS INDIA PRIVATE LIMITED

CUSTOMER NAME

SAMPLE IDENTIFIED AS : AMBIENT AIR QUALITY MONITORING HINDALCO INDUSTRIES LIMITED (MINES DIVISION)

**ADDRESS** 

LOHARDAGA, JHARKHAND

CITY

835302

COUNTRY

INDIA N.A.

SAMPLING METHOD SAMPLE DESCRIPTION

AMBIENT AIR QUALITY MONITORING

MARK/LOCATION

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

LOCATION: MINE LEASE AREA (CORE ZONE) DATE:04.10.12 TO 05.10.12

SAMPLE RECD ON

11/10/2012

TEST START DATE

11/10/2012

TEST END DATE

19/10/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT  As per CPCB RESIDENTIAL AREA MIN MAX	
CARBON MONOXIDE (CO)	USEPA CHAPTER-2	<0.1 ppm	1.7ppm(8h)	
OXIDES OF NITROGEN (NOx)	IS 5182 PART 6:2006	8.7 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	31.5 µg/m3	60 µg/m3	
SULPHUR DIOXIDE (SO2)	IS 5182:PART 2:2001	< 4.0 µg/m3	80 µg/m3	

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

per pro SGS India Private Ltd.

t. A. Auba Asish Chakraborty Manager Laboratory

Page 1 of 1

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Report No. : CA:GL:3120015208

DATE: 19/10/2012

JOE No.: 1212806597

Report Control No.:3125016391

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CUSTOMER NAME

LOHARDAGA, JHARKHAND

**ADDRESS** 

835302

CITY COUNTRY

INDIA

SAMPLING METHOD

SAMPLE DESCRIPTION

N.A.

AMBIENT AIR QUALITY MONITORING

DATE:04.10.12 TO 05.10.12

MARK/LOCATION

SITE: CHATAM VILLAGE (BUFFER ZONE) LOCATION:MINE LEASE AREA (CORE ZONE) Lugan

SAMPLE RECD ON

11/10/2012

TEST START DATE

11/10/2012

ST END DATE 19/10/2012 TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT  As per CPCB  RESIDENTIAL AREA  MIN MAX
CARBON MONOXIDE (CO)	USEPA CHAPTER-2	< 0.1 ppm	1.7ppm(8h)
OXIDES OF NITROGEN (NOx)	IS 5182 PART 6:2006	10.6 μg/m3	80 µg/m3
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	60.5 µg/m3	100 µg/m3
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	29.9 µg/m3	60 µg/m3
SULPHUR DIOXIDE (SO2)	IS 5182:PART 2:2001	< 4.0 µg/m3	80 µg/m3

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Report No.: CA:GL:3120015209

DATE: 19/10/2012

JOE No. : 1212806597

Report Control No.:3125016392

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

**CUSTOMER NAME** 

HINDALCO INDUSTRIES LIMITED (MINES DIVISION)

**ADDRESS** 

LOHARDAGA, JHARKHAND

CITY

835302

COUNTRY

INDIA N.A.

SAMPLING METHOD SAMPLE DESCRIPTION

AMBIENT AIR QUALITY MONITORING

MARK/LOCATION

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

LOCATION: RAJADERA VILLAGE (BUFFER ZONE)

DATE:05.10.12 TO 06.10.12

SAMPLE RECD ON

11/10/2012 11/10/2012

TEST START DATE TEST END DATE

19/10/2012

CAPRON MONOVIDE (CO)	PROTOCOL	RESULT	REQUIREMENT/LIMIT  As per CPCB  RESIDENTIAL AREA MIN MAX	
CARBON MONOXIDE (CO)	USEPA CHAPTER-2	< 0.1 ppm	1.7ppm(8h)	
OXIDES OF NITROGEN (NOx)	IS 5182 PART 6:2006	6.4 µg/m3	80 µg/m3	
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	86.5 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	

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J. A. Rusta Asish Chakraborty

Manager Laboratory

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Report No. : CA:GL:3120015210

DATE: 19/10/2012

JOE No.: 1212806597

Report Control No.:3125016393

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**ADDRESS** 

HINDALCO INDUSTRIES LIMITED (MINES DIVISION)

LOHARDAGA, JHARKHAND

CITY

835302

COUNTRY

INDIA NA

SAMPLING METHOD SAMPLE DESCRIPTION

AMBIENT AIR QUALITY MONITORING

MARK/LOCATION

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

LOCATION: DMAIL VILLAGE (BUFFER ZONE)

DATE:05.10.12 TO 06.10.12

SAMPLE RECD ON

11/10/2012 11/10/2012

TEST START DATE TEST END DATE

19/10/2012

TESTS	PROTOCOL	RESULT	REQUIREMENT/LIMIT  As per CPCB  RESIDENTIAL AREA MIN MAX	
CARBON MONOXIDE (CO)	USEPA CHAPTER-2	< 0.1 ppm	1.7ppm(8h)	
OXIDES OF NITROGEN (NOx)	IS 5182 PART 6:2006	8.6 µg/m3	80 µg/m3	
PARTICULATE MATTER(10)	IS:5182(PART 23)2006	73.5 µg/m3	100 μg/m3	
PARTICULATE MATTER(2.5)	USPEA CFR40(50), Appendix L	29.8 µg/m3	60 µg/m3	
SULPHUR DIOXIDE (SO2)	IS 5182:PART 2:2001	< 4.0 µg/m3	80 µg/m3	

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

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J. A. Duta Asish Chakraborty Manager Laboratory

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Report No. : CA:GL:3120013023

DATE: 12/09/2012

JOE No.: 1212805743

Control No.:3125014098

# 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

IN PLASTIC BOTTLE

SAMPLE CONDITION

SAMPLE QTY.

6.5L APP

I. RKILOCATION COLLECTED ON

GURDARI PAKRIGRAH WELL 29/08/2012, TIME: 1.00 PM

REGISTERED ON

01/09/2012

TEST START DATE

01/09/2012

TEST END DATE

12/09/2012

TESTS	PROTOCOL	RESULT	REQUIREM As r 10500:1991 Desirable	MENT/LIMIT Der IS (REAFF.1993 ) Permissible
ALKALINITY (as CaCO3)	IS 3025:PART 23 :1986(Reaff.1998)	11.88 mg/l	200mg/l	600mg/l
ALUMINIUM (as AI)	IS 3025 : Part 55 : 2003	0.09 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
CADMIUM (as Cd)	IS 3025;PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.

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Report No. : CA:GL:31200	13023	DATE: 12/09/2012			
OE No. : 1212805743	Control No.:3125014098				
TESTS	PROTOCOL	RESULT	REQUIREM As r 10500:1991	IENT/LIMIT er IS REAFF.1993	
			Desirable	Permissible	
CALCIUM (as Ca)	IS 3025:PART 40 :1991(Reaff.2003)	3.80 mg/l	75mg/l	200mg/l	
CHLORIDE ( as CI)	Clause 2 of IS 3025 Part 32:1988(Reaff. 1999)	4.02 mg/l	250mg/l	1000mg/i	
CHROMIUM (Cr6+)	IS 3025:PART 52:2003	3 <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 3)		ABS/100m	
Faecal coliforms	IS 1622:1981(Reaff2003	Absent/100ml		ABS/100n	
FLUORIDE	(S:3025(PART 60):2008	<0.10 mg/l	1.0mg/l	1.5mg/l	
IRON ( as Fe)	IS 3025:PART 53:200 (BY ICPOES)	0.22 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/	
MANGANESE	IS:3025(PART 59) 2006	0.07 mg/l	0.1mg/l	0.3mg/	

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TOTAL HARDNESS (as CaCO3)

TURBIDITY( in NTU )

# TEST REPORT

Report No.: CA:GL:3120013023		DATE: 12	2/09/2012	
OE No.: 1212805743 Contr	rol No.:3125014098			
TESTS	PROTOCOL	RESULT	REQUIREME As pe 10500:1991(F	rIS
			Desirable i	ermissible
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)	1.93 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
рН	IS 3025:PART 11:1983(Reaff.2002)	7.2 *	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/
RESIDUAL FREE CHLORINE	GEN/SOP/CALLAB-13	<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 r
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21	11.40 mg/l	300mg/l	600mg

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:1983(Reaff.2002)

IS 3025:PART 10

:1984(Reaff.2002)

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8.20

10NTU

5.0NTU

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Report No.: CA:GL:312001 JOE No.: 1212805743	Control No.:3125014098		PEOLIBEI	MENT/LIMIT
TESTS	PROTOCOL	RESULT	As	per IS (REAFF,1993
			Desirable	Permissible
ZINC (as Zn)	IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.25 mg/l	5mg/l	15mg/l
TOTAL DISSOLVED SOLIDS	IS 3025:PART 16:1984(Reaff.2002)	24 mg/l	500mg/l	2000mg/l
* Analyzed at site.		per pro SGS In	***** End of	Report ****
		per pro 30 m	ond i rivere	
		Dr.Nemal Gho Manager Labo	osh oratory	

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Report No.: CA:GL:3120013020

DATE: 11/09/2012

JOE No.: 1212805742

Cantrol No.:3125014051

### SAMPLE COLLECTED BY SGS

SAMPLE IDENTIFIED AS: SPRING WATER

**COMPANY NAME** 

HINDALCO INDUSTRIES LIMITED (MINES DIVISION)

**ADDRESS** 

LOHARDAGA, JHARKHAND

CITY

835302

SAMPLING METHOD

APHA 1060B 9060A

SAMPLE DESCRIPTION SPRING WATER

IN PLASTIC BOTTLE

SAMPLE CONDITION SAMPLE QTY.

6.5L APP

MARK/LOCATION

**KUJAM-BHATIAPAT** 

COLLECTED ON REGISTERED ON 30.08.12, TIME:1.30 PM

TEST START DATE

01/09/2012 01/09/2012

TEST END DATE

11/09/2012

TESTS	PROTOCOL	RESULT	As	MENT/LIMIT per IS I(REAFF,1993 ) Permissible
ALKALINITY (as CaCO3)	IS 3025:PART 23 :1986(Reaff.1998)	8.64 mg/l	200mg/l	600mg/l '
ALUMINIUM (as AI)	IS 3025 : Part 55 : 2003	0.03 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
CADMIUM (as Cd)	IS 3025:PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.

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Report No. : CA:GL:3120013020	DATE: 11/09/2012

Control No.:3125014051 JOE No. : 1212805742 PROTOCOL RESULT REQUIREMENT/LIMIT TESTS As per IS 10500:1991(REAFF.1993 ) Permissible Desirable 200mg/l IS 3025:PART 40 1.90 mg/l 75mg/l CALCIUM (as Ca) :1991(Reaff.2003) Clause 2 of IS 3025 <2.0 mg/l 250mg/l 1000mg/l CHLORIDE (as CI) Part 32:1988(Reaff. 1999) 0.05mg/l No Relax. IS 3025:PART 52:2003 <0.01 mg/l CHROMIUM (Cr6+) 25 IS 3025:PART 4 5 5.0 COLOUR ( HAZEN UNITS) :1983(Reaff.2002) 0.05mg/l <0.01 mg/l 1.5mg/l IS 3025: PART COPPER 42:1992(Reaff. 2003) BY ICPOES <0.02 mg/l 0.05mg/l No Relax. IS 3025:PART 27 CYANIDE (as CN) :1986(Reaff.1998) ABS/100ml Absent/100ml E.coli 1622:1981(Reaff.2003) ABS/100ml Absent/100ml Faecal coliforms 1622:1981(Reaff2003) <0.10 mg/l 1.0mg/l 1.5mg/l IS:3025(PART **FLUORIDE** 60):2008 IS 3025:PART 53:2003 <0.05 mg/l 0.3mg/l 1 mg/l IRON (as Fe) (BY ICPOES) No Relax. 0.05mg/l IS 3025:PART 0.02 mg/l LEAD (as Pb) 47:1994(Reaff.2003) BY ICPOES 30mg/l 100mg/I <1.0 mg/l IS 3025:PART 46 MAGNESIUM ( as Mg) :1994(Reaff.1999) IS:3025(PART 59) <0.01 mg/l 0.1mg/l 0.3mg/l MANGANESE 2006

Page 2 of 4

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Report No. : CA:GL:31	20013020	DATE: 11/09/2012
JOE No. : 1212805742	Control No.:3125014051	

TESTS	PROTOCOL	RESULT	REQUIRE	MENT/LIMIT
12313			As per IS 10500:1991(REAFF.199	
			Desira ble	Permissible
MERCURY (as Hg)	IS 3025:PART 48 :1994(Reaff.1999)BY ICPOES	<0.001 mg/l	0.001mg/l	No Relax.
MINERAL OIL	CLAUSE 6 OF IS 3025:PART 39:1991(Reaff. 2003)	BDL(DL-0.01 mg/l)	0.01mg/l	0.03mg/l
NITRATE	IS 3025:PART 34 :1988(Reaff.1999)	6.35 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
рН	IS 3025:PART 11:1983(Reaff.2002)	7.0°	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	<0.10 ppm*	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/100 ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	6.65 mg/l	300mg/l	600mg/I
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	1.90	5.0NTU	10NTU

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Report No. : CA:GL:3120013020		DATE	: 11/09/2012	2
JOE No. : 1212805742	Control No.:3125014051			
TESTS	PROTOCOL	RESULT	As	MENT/LIMIT per IS 1(REAFF.199
			Desirable	Permissible
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
Remarks: Based on the above postulation in the same permaximum permissible limit as per DL=Detection Limit Abs=Absent	arameters the sample complies r IS:10500:1991 (Reaff 1993) , B	with maximum of DL=Below Detection	lesirable and tion Limit;	
* Analysed at site				

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

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Dr.Nømai Ghosh Manager Laboratory

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DATE: 11/09/2012

Report No. : CA:GL:3120013019

JOE No.: 1212805741

Control No.:3125014050

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 GROUN WATER

SAMPLE CONDITION

IN PLASTIC BOTTLE

SAMPLE QTY.

6.5L APP

**MARK/LOCATION** COLLECTED ON

KUJAM-BHATIAPATH WELL

"EGISTERED ON

30/09/12, TIME:12.30 PM 01/09/2012

01/09/2012 11/09/2012

EST START DATE **TEST END DATE** 

TESTS	PROTOCOL	RESULT	As	MENT/LIMIT per IS I(REAFF.199 ) Permissible
ALKALINITY (as CaCO3)	IS 3025:PART 23 :1986(Reaff.1998)	8.64 mg/l	200mg/l	600mg/l
ALUMINIUM (as AI)	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		0.2mg/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
CADMIUM (as Cd)	IS 3025:PART 41 :1992(Reaff.1998)BY ICPOES	<0.005 mg/l	0.01mg/l	No Relax.

Page 1 of 4

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Report No. : CA:GL:3120013019 DATE: 11/09/2012 JOE No.: 1212805741 Control No.:3125014050

	Control No.:3125014050			
TESTS	TESTS PROTOCOL		REQUIREMENT/LIMIT  As per IS  10500:1991(REAFF.199	
			Desirable	) Permissible
CALCIUM (as Ca)	IS 3025:PART 40 :1991(Reaff.2003)	3.04 mg/l	75mg/l	200mg/l
CHLORIDE ( as CI)	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/100 ml		ABS/100ml
Faecal coliforms	IS 1622:1981(Reaff2003)	Absent/100 ml		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)	0.02 mg/l	0.3mg/l	1 mg/l
LEAD (as Pb)	IS 3025:PART 47:1994(Reaff.2003) BY ICPOES	0.02 mg/l	0.05mg/l	No Relax.
MAGNESIUM ( as Mg)	IS 3025:PART 46 :1994(Reaff.1999)	<1.0 mg/l	30mg/I	100mg/l
MANGANESE		<0.01 mg/l	0.1mg/l	0.3mg/f

# Page 2 of 4

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Report No. : CA:GL:31	20013019	DATE
JOE No. : 1212805741	Contal No. Oroso	DATE: 11/09/2012
	Control No.:3125014050	

TESTS				
	PROTOCOL	RESULT	REQUIRE	MENT/LIMIT
			As 10500:199	Per IS (REAFF.1993
MERCURY (as Hg)			Desirable	Permissible
*	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/i	0.03mg/I
NITRATE	IS 3025:PART 34 :1988(Reaff.1999)	7.83 mg/l	45mg/l	No Relax.
ODOUR	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
pH	IS 3025:PART 11:1983(Reaff.2002)	7.0*	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	<0.10 ppm*	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/I
TASTE	IS 3025:PART 7 :1984(Reaff.2002)	Agreeable	Agreeable	
Total Coliforms	10	8.4 MPN/100ml		10/100 ml
TOTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	10.45 mg/l	300mg/j	600mg/l
TURBIDITY( In NTU )	IS 3025:PART 10 :1984(Reaff.2002)	2.04	5.0NTU	10NTU

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Mamber of the 8G5 Group (903 SA)



Report No. : CA:GL:3120013019 JOE No. : 1212805741 DATE: 11/09/2012 Control No.:3125014050 TESTS PROTOCOL RESULT REQUIREMENT/LIMIT As per IS 10500:1991(REAFF.1993 Desirable Permiss lble ZINC (as Zn) IS 3025 Part <0.01 mg/l 5mg/l 49:1991(Reaff.2003) 15mg/1 BY ICPOES TOTAL DISSOLVED SOLIDS IS 3025:PART 24 mg/l 500mg/l Remarks : Based on the above parameters the sample complies with maximum desirable and 16:1984(Reaff.2002) 2000mg/l maximum permissible limit as per IS:10500:1991 (Reaff 1993), BDL=Below Detection Limit; \* Analysed at site \*\*\*\* End of Report \*\*\*\* per pro SGS Inglia Private Ltd.

> Dr.Nemal Ghosh Manager Laboratory

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

**Print Date** 

: 22/03/2013

Report No : KG13-001961.001

JOE No : KG13-001961

Report Control No

: KGR0000012735

Sample Described by Customer as : SOIL(COMPOSITE)

Client Name Client Address

: Hindalco Industries Limited(Mines Division) : Lohardaga,

Postal Code

: 835203

State

: Jharkhand

Country

: India

Sample Type

: SOIL(COMPOSITE)

Received

: 12/03/2013 : 12/03/2013

Registered Marks on Sample

: Location:Reclaimed area in Quarry 6A

Sampling Site

: Gurdari/Kujam-II/Amtipani/Kujam-I Bauxite Mines(Netalhat Plateau)

Sample Collected

: 24.02.2013

Quantity

: 2.5Kg app

Test Start/End Date : 12/03/2013 - 21/03/2013

Analysis	Method	Result	Limit of Reporting (LOR)	Unit
Conductivity (1:5) Soil Suspention.	F.A.U.N (2007)	37.6	1.00	µs/cm
(1:2 aqueous solution) pH (1:2) Soil Suspention	F.A.U.N (2007)	6	0.50	_
(1:2 aqueous solution) Porosity	F.A.U.N (2007)	48.02		
Bulk Density	By Bulk Density Apparatus	1.07	0.10	%
Phosphorus (as P)	F.A.U.N (2007)	<20.000	5-7-5-7-5-7-5-7-5-7-5-7-5-7-5-7-5-7-5-7	gram/mi
Texture	F.A.U.N (2007)	Sandy clay	20.00	mg/kg
Clay	F.A.U.N (2007)	37.5	5.00	%
Sand	F.A.U.N (2007)	47.5	THE SEC	
Silt	F.A.U.N (2007)	15.0	1.00	%
Available Chloride (as CI)	Soil & Agriculture Organization		1.00	%
6 G	(U.N-2007)	<20.00	20.00	mg/kg
Available Nitrogen	Food & Agriculture Organization (U.N-2007)	322.46	20.00	mg/kg

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

**Print Date** 

: 22/03/2013

Report No : KG13-001961.001

JOE No : KG13-001961

Analysis	Report Control No : Method	KGR0000012735 Result	Limit of Reporting (LOR)	Unit
Available Potassium (as K)	Soil & Water Book By P.K.	1577.59	1.00	
Available Magnesium (as Mg)	Gupta Soil & Water Book By P.K.	2378.12	1.00	mg/kg
Lead (as Pb)	Gupta USEPA 3052	18.73	2.00	mg/kg
Chromium (as Cr)	USEPA 3052	95.95	2.00	mg/kg mg/kg
Mercury (as Hg)	USEPA 3052	<1.00	1.00	mg/kg
Total Organic Matter	Black & Walkely Wet Digestion Method	0.53	0.01	%

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

**Authorized Signatory** 

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

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Page 2 of 2

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

**Print Date** 

: 22/03/2013

Report No : KG13-001961.002

JOE No : KG13-001961

Report Control No : KGR0000012735

Sample Described by Customer as : SOIL(COMPOSITE)

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address Postal Code

: Lohardaga,

: 835203

State

: Jharkhand

Country

: India

Sample Type

: SOIL(COMPOSITE)

Received

: 12/03/2013

Registered

: 12/03/2013

Marks on Sample

: Location:Reclaimed area in quarry 6B

Sampling Site

: Gurdari/Kujam-II/Amtipani/Kujam-I Bauxite Mines(Netalhat Plateau)

Sample Collected : 24.02.2013 Quantity

: 2.5Kg app Test Start/End Date : 12/03/2013 - 21/03/2013

Analysis	Method	Result	Limit of Reporting (LOR)	Unit
Conductivity (1:5) Soil Suspention.	F.A.U.N (2007)	30.5		
(1:2 aqueous solution)		00.5	1.00	µs/cm
pH (1:2) Soil Suspention (1:2 aqueous solution)	F.A.U.N (2007)	6	0.50	_
Porosity	F.A.U.N (2007)	50.05		
Bulk Density	By Bulk Density Apparatus	50.25	-	%
Phosphorus (as P)	F.A.U.N (2007)	1.05	0.10	gram/mi
Texture	The Control Co	<20.000	20.00	mg/kg
Clay	F.A.U.N (2007)	Clay		
Sand	F.A.U.N (2007)	42.5	5.00	%
Silt	F.A.U.N (2007)	40.0	1.00	125
	F.A.U.N (2007)	17.5	- AREAS	%
Available Chloride (as CI)	Soil & Agriculture Organization	21.56	1.00	%
Available Nitrogen	(U.N-2007) Food & Agriculture	(55)	20.00	mg/kg
- 120 m	Organization (U.N-2007)	339.84	20.00	mg/kg

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

**Print Date** 

: 22/03/2013

Report No : KG13-001961.002

JOE No : KG13-001961

Analysis	Report Control No : Method	KGR0000012735 Result	Limit of Reporting (LOR)	Unit
Available Potasslum (as K)	Soil & Water Book By P.K.	1769.11	1.00	
Available Magnesium (as Mg)	Gupta Soil & Water Book By P.K.		1.00	mg/kg
Lead (as Pb)	Gupta USEPA 3052	2304.82	1.00	mg/kg
Chromium (as Cr)	0.75.77	10.84	2.00	mg/kg
Mercury (as Hg)	USEPA 3052	62.20	2.00	mg/kg
Total Organic Matter	USEPA 3052	<1.00	1.00	mg/kg
rotal Organic matter	Black & Walkely Wet Digestion  Method	0.69	0.01	%

Per pro SGS India Private Ltd

Satya Manna

Marma ?

Section Incharge - ENVI **Authorized Signatory** 

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

Page 2 of 2

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

**Print Date** 

: 18/03/2013

Report No : KG13-001952.001

JOE No : KG13-001952

: KGR0000012027 Report Control No

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

: 835203

State

: Jharkhand

Country Sample Type : India

Received

: AMBIENT AIR QUALITY MONITORING : 12/03/2013

Registered

: 12/03/2013

Marks on Sample Sampling Site

: Location : Mines Lease Area, date : 22.02.2013 : Gurdari/Kujam-II/Amtipani/Kujam-I Bauxite Mines(Neterhal plateau)

Test Start/End Date : 12/03/2013 - 18/03/2013

Analysis	Method	Result	Result	Unit	(CONTRACTOR (CONTRACTOR)	nent/Limit as Per NAAQS	
				Min	Max		
Particulate Matter (PM10 )	IS:5182 (Part-23 ):2006	81	ug/m3	•	100		
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	41.36	ug/m3		60		
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	8.19	ug/m3	±#15	80		
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff,2006)	<5.00	ug/m3	-	80		
Carbon Monoxide	By NDIR Spectroscopy.	< 0.10	PPM				

Remark: CO Analyzed at site.

### Page 1 of 2

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 18/03/2013

Report No : KG13-001952.001

JOE No : KG13-001952

Report Control No : KGR0000012027

Per pro SGS India Private Ltd

( Jamas -Satya Manna

Section Incharge - ENVI **Authorized Signatory** 

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

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

**Print Date** 

: 18/03/2013

JOE No : KG13-001952

Report No : KG13-001952.002

Report Control No : KGR0000012027

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

: 835203

State

Country

: Jharkhand

: India

Sample Type

: AMBIENT AIR QUALITY MONITORING

Received

: 12/03/2013

Registered

: 12/03/2013

Marks on Sample

: Location : Chatam Village, date : 22.02.2013

Sampling Site

: Gurdari/Kujam-II/Amtipani/Kujam-I Bauxite Mines(Neterhal plateau)

Test Start/End Date : 12/03/2013 - 18/03/2013

Analysis	Method	Result	Unit		nent/Limit as Pe NAAQS	
				Min	Max	
Particulate Matter (PM10)	IS:5182 (Part-23 ):2006	79	ug/m3		100	
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	32.08	ug/m3		60	
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	6.59	ug/m3	•	80	
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3		80	
Carbon Monoxide	By NDIR Spectroscopy.	< 0.10	PPM			

Remark: CO Analyzed at site.

# Page 1 of 2

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 18/03/2013

Report No : KG13-001952.002

JOE No : KG13-001952

Report Control No : KGR0000012027

Per pro SGS India Private Ltd

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Satva Manna

Section Incharge - ENVI **Authorized Signatory** 

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

# Page 2 of 2

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

: 18/03/2013 Print Date

JOE No : KG13-001952

Report No : KG13-001952.003

Report Control No : KGR0000012027

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

: 835203

State

: Jharkhand

Country

: India

Sample Type

: AMBIENT AIR QUALITY MONITORING

Received

: 12/03/2013

Registered

: 12/03/2013

Marks on Sample

: Location : Dmail Village, date : 23.02.2013

Sampling Site

: Gurdari/Kujam-II/Amtipani/Kujam-I Bauxite Mines(Neterhal plateau)

Test Start/End Date : 12/03/2013 - 18/03/2013

Analysis	Method	Result	Unit		nent/Limit as Per	
				Min	Max	
Particulate Matter (PM10 )	IS:5182 (Part-23 ):2006	67	ug/m3		100	
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	25.94	ug/m3	•	60	
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	6.37	ug/m3	-	80	
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80	
Carbon Monoxide	By NDIR Spectroscopy.	<0.10	PPM			

Remark: CO Analyzed at site.

# Page 1 of 2

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 18/03/2013

Report No : KG13-001952.003

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JOE No : KG13-001952

Report Control No : KGR0000012027

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI **Authorized Signatory** 

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

# Page 2 of 2

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

**Print Date** 

: 18/03/2013

Report No : KG13-001952.004

JOE No : KG13-001952

Report Control No : KGR0000012027 Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

: 835203

State

: Jharkhand

Country

Sample Type

: India

Received

: AMBIENT AIR QUALITY MONITORING : 12/03/2013

Registered

: 12/03/2013

Marks on Sample

: Location : Rajadera Village, date : 23.02.2013

Sampling Site

: Gurdari/Kujam-II/Amtipani/Kujam-I Bauxite Mines(Neterhal plateau)

Test Start/End Date : 12/03/2013 - 18/03/2013

Analysis	Method	Result	Unit	Requirement/Limit as Pe	
				Min	Max
Particulate Matter (PM10)	IS:5182 (Part-23 ):2006	50	ug/m3	_	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	20.66	ug/m3		
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	5.06	ug/m3		60 80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3		80
Carbon Monoxide ark: CO Analyzed at site.	By NDIR Spectroscopy.	<0.10	PPM		

### Page 1 of 2

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SAMPLE DRAWN BY SGS INDIA PVT. LTD.

**Print Date** 

: 18/03/2013

Report No : KG13-001952.004

JOE No : KG13-001952

Report Control No : KGR0000012027

Per pro SGS India Private Ltd

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Satya Manna

Section Incharge - ENVI

**Authorized Signatory** 

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

### Page 2 of 2

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 02/04/2013

Report No : KG13-002097.004

JOE No: KG13-002097

Report Control No : KGR0000013918 Sample Described by Customer as : SPRING WATER

Client Name

; Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

: 835203

State Country

; Jharkhand

Sample Type

: India

: SPRING WATER

Received

: 18/03/2013

Registered

: 18/03/2013

Marks on Sample

: Location: Gurdari-Pol-pol Village

Quantity

; 5.5L app

Sample Collected

: 12.03.2013, time : 11.30 am

Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	Method	Result	Unit		ment/Limit 10500:2012
Colour				Acceptable	Permissible
	IS:3025 (Part-4):1983 (Reaff.2006)	15.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff 2006)	Agreeable		Agreeable	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff,2006)	Agreeable		Agreeable	Agreeacie
pH Total Hardana / O ana	IS:3025 (Part-11):1983 (Reaff.2006)	7.20*		6.5	3.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	12.12	mg/L	200	600
Iron (as Fe) Fluoride (as F)	IS:3025 (Part-2)	0.80	mg/L	0.3	No relaxation
Residual Free Chlorine	IS:3025 (Part-60):2008	< 0.10	mg/L	10	1.5
Chloride (as CI)	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	: 0
Total Dissolved Soilds	IS:3025 (Part-32):1988 (Reaff.1999)	<5.00	mg/L	250	1000
The state of the s	IS:3025 (Part-16 :1984 (Reaff.1996)	23.00	mg/L	500	2000
E.coli	IS 1622:1981(Reaff 2003)	Absent	per 100ml		Absent/100m

Page 1 of 3

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Print Date: 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002097.004

JOE No: KG13-002097

Analysis	Report Control No : Method	KGR0000013918 Result	Unit	Require As per IS:	ment/Limit 10500:2012
Coliform bacteria				Acceptable	Permissibl
Calcium (as Ca)	IS:1622-1981 (Reaffirmation 2003)	Present	per 100ml		Absent/100n
Magnesium (as Mg)	IS:3025 (Part-40) :1991 (Reaff.2003)	3 23	mg/L	75	200
Copper (as Cu)	IS:3025 (Part-46):1994 (Reaff.1999)	<1.00	mg/L	30	100
	IS:3025 (Part-2)	< 0.01	mg/L	0.05	
Manganese (as Mn)	IS:3025 (Part-2)	0.07	mg/L	0.1	1.5
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	4.32	mg/L	200	0.0
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	0.70	mg/L	45	No relaxation
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0.001	0 002
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff.1999)	< 0.001	mg/L	0 001	32.22.2
Cadmium (as Cd)	IS:3025 (Part-41):1992	< 0.003	mg/L	0.003	No relaxation
Selenium (as Se)	(Reaff.2003) IS:3025 (Part-2)	<0.005		, , , , , , , , , , , , , , , , , , , ,	No relaxation
Arsenic (as As)	IS:3025 (Part-37):1988	< 0.005	mg/L mg/L	0 01	No relaxation
Cyanide (as CN)	(Reaff.1999) IS:3025 (Part-27):1986	<0.020		04044	No relaxation
Lead (as Pb)	(Reaff.2003) IS:3025 (Part-47):1994	0.034	mg/L		No relaxation
Zinc (as Zn)	(Reaff.1999) IS:3025 (Part-2)		mg/L	0.01	No relaxation
Anionic Surface Active Agent (as	IS:13428:2005: Annex K	<0.01	mg/L	5	15
MBAS) Chromium (as Cr)		<0.05	mg/L	0.2	10
Aineral Oil	IS:3025 (Part-2) IS:3025 (Part-39) :1991	<0.01	mg/L	0.05	No relaxation
otal Alkalinity (as CaCO3)	(Reaff.2003)	<0.01	mg/L	0.5	No relaxation
Aluminium (as Al)	IS:3025 (Part-23):1986 (Reaff.2003)	16.55	mg/L	200	600
loron (as B)	IS:3025 (Part-55):2003	0.49	mg/L	0.03	0.2
urbidity	IS:3025 (Part-57):2005 IS:3025 (Part-10):1984	0.12	mg/L	0.5	1.0
	(Reaff.2006)	4 .55	NTU	1	5

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Print Date: 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002097.004

JOE No: KG13-002097

Analysis

Report Control No.

: KGR0000013918

Method

Result Unit

Requirement/Limit As per IS:10500:2012

Acceptable Permissible

Remark: 'Analyzed at site.

Per pro SGS India Private Lt

der or already

Asish Chakraborty Laboratory Manager **Authorized Signatory** 

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

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Print Date: 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002097.005

JOE No: KG13-002097

Report Control No : KGR0000013918

Sample Described by Customer as : SPRING WATER

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

: 835203

State

: Jharkhand

: India

Country Sample Type

Received

: SPRING WATER

: 18/03/2013 : 18/03/2013

Registered Marks on Sample

: Location: Kujum-Deepa Kujam

Quantity

: 5.5L app

Sample Collected : 13.03.2013, time : 12.00 pm

Tost Start/End Date : 18/03/2013 - 01/04/2013

Analysis	sis Method		Unit	Requirement/Limit As per IS:10500:2012	
	- 3 - 8			Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	5.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff,2006)	Agreeable		Agreeable	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff,2006)	Agreeable		Agreeable	Agreeabl
На	IS:3025 (Part-11):1983 (Reaff,2006)	7.00*		6.5	8.
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	4.54	mg/L	200	60
Iron (as Fe)	IS:3025 (Part-2)	0.05	mg/L	03	No relaxatio
Fluoride (as F)	IS:3025 (Part-60):2008	<0.10	mg/L	10	1
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff.1999)	<5 00	mg/L	250	100
Total Dissolved Soilds	IS:3025 (Part-16 :1984 (Reaff.1996)	12.80	mg/L	500	200
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100

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Print Date: 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

· KCD0000012019

Report Control No

Report No: KG13-002097.005

JOE No: KG13-002097

Analysis .	Method Result		Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissibl
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Present	per 100mi		Absent/100r
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	1.41	mg/L	75	20
Magnesium (as Mg)	(S:3025 (Part-46) :1994 (Reaff.1999)	<1.00	mg/L	30	10
Copper (as Cu)	IS:3025 (Part-2)	< 0.01	mg/L	0.05	1
Manganese (as Mn)	IS:3025 (Part-2)	< 0.01	mg/L	0.1	0.
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	40
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	2.33	mg/L	45	No relaxatio
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0.001	0.00
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff.1999)	<0.001	mg/L	0.001	No relaxatio
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	< 0.003	mg/L	0.003	No relaxatio
Selenium (as Se)	IS:3025 (Part-2)	< 0.005	mg/L	0 01	No relaxatio
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff 1999)	< 0.005	mg/L	0.01	No relaxatio
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxatio
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	0.030	mg/L	0 01	No relaxatio
Zinc (as Zn)	IS:3025 (Part-2)	<0.01	mg/L	5	1
Anionic Surface Active Agent (as MBAS)	IS:13428:2005; Annex K	<0.05	mg/L	0.2	1
Chromium (as Cr)	IS:3025 (Part-2)	< 0.01	mg/L	0 05	No relaxatio
Mineral Oil	IS:3025 (Part-39) :1991 (Reaff.2003)	<0.01	mg/L	0.5	No relaxatio
Total Alkalinity (as CaCO3)	IS:3025 (Part-23):1986 (Reaff.2003)	5.52	mg/L	200	60
Aluminium (as Al)	IS:3025 (Part-55):2003	< 0.03	mg/L	0 03	0
Boron (as B)	IS:3025 (Part-57):2005	0.10	mg/L	0.5	1
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	2.15	NTU	1	

Page 2 of 3

WARNING The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 02/04/2013

Analysis

Report No : KG13-002097.005

JOE No: KG13-002097

: KGR0000013918

Method

Report Control No

Result

Unit

Requirement/Limit

As per IS:10500:2012

Acceptable Permissible

Remark: 'Analyzed at site.

Per pro SGS India Private Lt

Dr. Orahambat X

Asish Chakraborty Laboratory Manager **Authorized Signatory** 

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

Page 3 of 3

WARNING The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No: KG13-002094.003

JOE No: KG13-002094

Report Control No : KGR0000013687

Sample Described by Customer as : GROUND WATER

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

State

: 835203 : Jharkhand

Country

; India

Sample Type

: GROUND WATER

Received

: 18/03/2013

Registered

: 18/03/2013

Marks on Sample

: Location : Gurdari-Office

Quantity

; 5.5L app

Sample Collected

: 12.03.2013, time :10.30 am

Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	Method	Result	Unit	Jnit Requirement  As per IS:10500	
				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	15.0	Hz	5	16
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeanie
рН	IS:3025 (Part-11):1983 (Reaff.2006)	7.10*		6.5	8.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff,2006)	6.06	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	9.22	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	<0.10	mg/L	1.0	1.5
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.0
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff.1999)	<5.00	mg/L	250	1000
Total Dissolved Soilds	IS:3025 (Part-16 :1984 (Reaff.1996)	18.00	mg/L	500	2007
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent 100m
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Absent	per 100ml		Absent/100m
Calcium (as Ca)	IS:3025 (Part-40) :1991 (Reaff.2003)	2.02	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46) :1994 (Reaff.1999)	<1.00	mg/L	30	1GG

Page 1 of 3

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Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.003

JOE No: KG13-002094

	Y Commence of the commence of			002 110 . NO 15-002054		
Analysis	Report Control No Method	: KGR0000013687 Result	Unit	and the second	nent/Limit 10500:2012	
				Acceptable	Permissib	
Copper (as Cu)	IS:3025 (Part-2)	0.02	mg/L	0.05	1	
Manganese (as Mn)	IS:3025 (Part-2)	0.05	mg/L	0.1	5	
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	5.27	mg/L	200	40	
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	2 92	mg/L	45	No relaxatio	
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0 001	G 09	
Mercury (as Hg)	IS:3025 (Part-48) 1994 (Reaff.1999)	< 0.001	mg/L	0.001	No relaxatio	
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff 2003)	<0.003	mg/L	0.003	No relaxatio	
Selenium (as Se)	IS:3025 (Part-2)	<0.005	mg/L	0.01	No relaxatio	
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff.1999)	< 0.005	mg/L	0.01	No relaxatio	
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff 2003)	<0.020	mg/L	0.05	No relavation	
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation	
Zinc (as Zn)	IS:3025 (Part-2)	0.04	mg/L	5	1	
Anionic Surface Active Agent (as MBAS)	IS:13428:2005. Annex K	<0.05	mg/L	0.2	11	
Chromium (as Cr)	IS:3025 (Part-2)	<0.01	mg/L	0.05	No relaxation	
Mineral Oil	IS:3025 (Part-39):1991 (Reaff,2003)	<0.01	mg/L	0.5	No relaxation	
Total Alkalinity (as CaCO3)	IS 3025 (Part-23) 1986 (Reaff, 2003)	9 93	mg/L	200	* ·	
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0;	
Boron (as B)	IS:3025 (Part-57):2005	0 12	mg/L	0.5	1.5	
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	3.50	NTU	1	÷	

Remark: 'Analyzed at site.

Page 2 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No : KG13-002094.003

JOE No: KG13-002094

Report Control No : KGR0000013687

Per pro SGS India Private Lt

Av challants

Asish Chakraborty **Laboratory Manager Authorized Signatory** 

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

#### Page 3 of 3

WARNING. The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted.

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Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.004

JOE No: KG13-002094

Report Control No : KGR0000013687

Sample Described by Customer as : GROUND WATER

Client Name Client Address : Hindalco Industries Limited(Mines Division)

Postal Code

: Lohardaga.

: 835203

State

: Jharkhand

; India

Country Sample Type

: GROUND WATER

Received

: 18/03/2013

: 18/03/2013

Registered

Marks on Sample

: Location: Gurdari-Sagatali

Quantity Sample Collected ; 5.5L app

: 12.03.2013, time : 11.00 am Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	S Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
***				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff 2006)	10.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeatiic
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
Hq	IS:3025 (Part-11):1983 (Reaff.2006)	7.00*		6.5	8.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	17.17	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	6.88	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	0.36	mg/L	1.0	1.5
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.0
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff 1999)	5.39	mg/L	250	1000
Total Dissolved Soilds	IS:3025 (Part-16 :1984 (Reaff.1996)	36.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100mi		Absent/100m
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Absent	per 100ml		Absent/100n
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	5.25	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46) :1994 (Reaff.1999)	<1.00	mg/L	30	1(5,1

Page 1 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No : KG13-002094.004

JOE No: KG13-002094

Analysis	Report Control No	: KGR0000013687			
Analysis	Method	Result	Unit		ment/Limit 10500:2012
				Acceptable	Permiseit
Copper (as Cu)	IS:3025 (Part-2)	0.05	mg/L	0.05	
Manganese (as Mn)	IS:3025 (Part-2)	0.06		1000000	1
Sulphate (as SO4)	IS:3025 (Part-24):1986		mg/L	0.1	C
Nitrate (as NO3)	(Reaff.1998)	<2.00	mg/L	200	4
	IS:3025 (Part-34):1988 (Reaff.1999)	5.07	mg/L	45	No relaxation
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0.001	0.00
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff,1999)	<0.001	mg/L	0.001	No relaxation
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	<0.003	mg/L	0.003	No relaxati
Selenium (as Se)	IS:3025 (Part-2)	< 0.005	mg/L	0.01	2/
Arsenic (as As)	IS:3025 (Part-37):1988	<0.005	mg/L		No relaxation
Cyanide (as CN)	(Reaff.1999) IS:3025 (Part-27):1986	<0.020	mg/L	0.01	No relaxation
Lead (as Pb)	(Reaff.2003) IS:3025 (Part-47):1994 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation
Zinc (as Zn)	IS:3025 (Part-2)	0.07	mg/L	5	
Anionic Surface Active Agent (as MBAS)	IS:13428:2005: Annex K	<0.05	mg/L	0.2	1
Chromium (as Cr)	IS:3025 (Part-2)	0.01	mg/L	0.05	
Mineral Oil	IS:3025 (Part-39):1991 (Reaff,2003)	<0.01	mg/L		No relaxatio No relaxatio
Total Alkalinity (as CaCO3)	IS:3025 (Part-23) :1986 (Reaff.2003)	20.96	mg/L	200	50
Aluminium (as Al)	IS:3025 (Part-55):2003	< 0.03	mg/L	0 03	2073
Boron (as B)	IS:3025 (Part-57):2005	0.13			0.
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	27.50	mg/L NTU	0.5	1 (

Remark: \*Analyzed at site.

#### Page 2 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No: KG13-002094.004

JOE No: KG13-002094

Report Control No

: KGR0000013687

Per pro SGS India Private Lt

Dr. Or already of A

Asish Chakraborty Laboratory Manager Authorized Signatory

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

## Page 3 of 3

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Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.005

JOE No: KG13-002094

Report Control No : KGR0000013687

Sample Described by Customer as : GROUND WATER

Client Name Client Address

: Hindalco Industries Limited(Mines Division) : Lohardaga,

Postal Code

: 835203

State

: Jharkhand

; India

Country Sample Type

: GROUND WATER

Received

: 18/03/2013

Registered

: 18/03/2013

Marks on Sample

: Location: Gurdari Deepapath

Quantity

: 5.5L app

Sample Collected

: 12.03.2013, time : 11.45 am

Analusia

Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	Method	Result	Unit		ment/Limit 10500:2012
	*			Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff:2006)	10.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agrecapte
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeapa
Н	IS:3025 (Part-11):1983 (Reaff.2006)	7.10*		6.5	8.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff,2006)	50.50	mg/L	200	600
iron (as Fe)	IS:3025 (Part-2)	03	mg/L	0.3	
Fluoride (as F)	IS.3025 (Part-60):2008	0.45	mg/L	1.0	No relaxation
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	16
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff,1999)	10.77	mg/L	250	1000
Total Dissolved Soilds	IS:3025 (Part-16:1984	86.00	mg/L	500	
E.coli	(Reaff.1996) IS:1622:1981(Reaff.2003)	Absent	per 100ml		2006
Coliform bacteria	IS:1822-1981 (Reaffirmation	Absent	per 100ml		Absent/100m
Calcium (as Ca)	2003) IS:3025 (Part-40) :1991	12.12			Absent/100m
Magnesium (as Mg)	(Reaff.2003) IS:3025 (Part-46) :1994	4.91	mg/L	75	200
	(Reaff.1999)	4.01	mg/L	30	100

Page 1 of 3

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any SGS India Private Limited CS Plot -512(p) Mouza, Hanspukuria Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone 91 33 849/97/00/70 81 SGS India Pvt. Ltd. Regd & Corp. Off., SGS Nouse. 4B, A S. Marg. Vikhroli (Wast), Mumbai-400083. Tel: (022) 25798421 to 28 Fax. (022) 25798431 to 35 www.cats.com.



Print Date: 01/04/2013

#### SAMPLE COLLECTED BY SGS INDIA PVT, LTD.

Report No : KG13-002094.005

JOE No: KG13-002094

	Report Control No	: KGR0000013687		***************************************	
Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissibl
Copper (as Cu)	IS:3025 (Part-2)	0.01	mg/L	0.05	1 5
Manganese (as Mn)	IS:3025 (Part-2)	0.01	mg/L	0.1	o o
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	40
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff,1999)	10.02	mg/L	45	No relaxation
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0.001	0.000
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff,1999)	< 0.001	mg/L	0.001	No relaxation
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	< 0.003	mg/L	0.003	No relaxation
Selenium (as Se)	IS:3025 (Part-2)	<0.005	mg/L	0.01	No relaxation
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff,1999)	<0.005	mg/L	0.01	No relaxation
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxation
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation
Zinc (as Zn)	IS:3025 (Part-2)	0.02	mg/L	5	15
Anionic Surface Active Agent (as MBAS)	IS:13428:2005: Annex K	<0.05	mg/L	0 2	1 0
Chromium (as Cr)	IS:3025 (Part-2)	< 0.01	mg/L	0 05	No relaxation
Mineral Oil	IS:3025 (Part-39):1991 (Reaff.2003)	<0.01	mg/L	0.5	No relaxation
Total Alkalinity (as CaCO3)	IS:3025 (Part-23):1986 (Reaff.2003)	33.09	mg/L	200	80
Aluminium (as Al)	IS:3025 (Part-55):2003	< 0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	0.13	mg/L	0.5	1 (
Turbidity	IS:3025 (Part-10):1984 (Reaff,2006)	17.40	NTU	1	

#### Page 2 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No : KG13-002094.005

JOE No: KG13-002094

Report Control No : KGR0000013687

Per pro SGS India Private LI

Dr. Or Maday

Asish Chakraborty Laboratory Manager **Authorized Signatory** 

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

#### Page 3 of 3

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Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.006

JOE No: KG13-002094

Report Control No

: KGR0000013687

Sample Described by Customer as : GROUND WATER

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address Postal Code

: Lohardaga, : 835203

State

: Jharkhand

Country

: India

Sample Type

; GROUND WATER

Received

: 18/03/2013

Registered

: 18/03/2013

Marks on Sample

: Location: Gurdari Kuttupani

Quantity

: 5.5L app

Sample Collected

: 12.03.2013, time : 2.00 pm

Analysis

Test Start/End Date : 18/03/2013 - 01/04/2013

Citalyaia	Method		Unit	Requirement/Limit As per IS:10500:2012	
A.				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	5.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
рН	IS:3025 (Part-11):1983 (Reaff-2006)	7.30*		6.5	8.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	51.51	mg/L	200	660
Iron (as Fe)	IS:3025 (Part-2)	0.25	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	<0.10	mg/L	1.0	
Residual Free Chlorine	IS:3025 (Part-25):1985 (Reaff.2003)	<0.10	mg/L	0.2	1.5
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff.1999)	<5.00	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16 :1984 (Reaff.1996)	74.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		
Coliform bacteria	IS:1822-1981 (Reaffirmation	Absent	per 100ml		Absent/100m
Calcium (as Ca)	2003) IS:3025 (Part-40):1991	12.93	1.		Absent/10(un
Magnesium (as Mg)	(Reaff.2003) IS:3025 (Part-46) :1994	4.66	mg/L	75	200
	(Reaff.1999)	4.00	mg/L	30	100

Page 1 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No : KG13-002094.006

JOE No: KG13-002094

				101010102054			
Analysis	Report Control No Method	: KGR0000013687					
*	Wethou	Result	Unit		ment/Limit 10500:2012		
			-	Acceptable	Permissibl		
Copper (as Cu)	IS:3025 (Part-2)	<0.01	mg/L	0.05	4 /		
Manganese (as Mn)	IS:3025 (Part-2)	<0.01	mg/L	0.1	C		
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	46		
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	1.28	mg/L	45	No relaxation		
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff 2003)	<0.001	mg/L	0.001	0 003		
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff.1999)	<0.001	mg/L	0.001	No relaxation		
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	<0.003	mg/L	0.003	No relaxation		
Selenium (as Se)	IS:3025 (Part-2)	< 0.005	mg/L	0.01	No relaxation		
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation		
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxation		
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation		
Zinc (as Zn)	IS:3025 (Part-2)	0.23	mg/L	5			
Anionic Surface Active Agent (as MBAS)	IS:13428:2005: Annex K	<0.05	mg/L	0.2	1 (		
Chromium (as Cr)	IS:3025 (Part-2)	<0.01	mg/L	0.05	No relaxation		
Mineral Oil	IS:3025 (Part-39) :1991 (Reaff.2003)	<0.01	mg/L	0.5	No relaxation		
Total Alkalinity (as CaCO3)	IS:3025 (Part-23):1986 (Reaff.2003)	60.67	mg/L	200	600		
Aluminium (as AI)	IS:3025 (Part-55):2003	<0.03	mg/L	0 03	0.3		
Boron (as B)	IS:3025 (Part-57):2005	0.11	mg/L	0.5	1 (		
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	4.45	NTU	1	5		

## Page 2 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No: KG13-002094.006

JOE No: KG13-002004

Report Control No : KGR0000013687

Per pro SGS India Private Lt

Av drahadaly

Asish Chakraborty Laboratory Manager **Authorized Signatory** 

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

## Page 3 of 3

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Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.007

JOE No: KG13-002094

Report Control No : KGR0000013687

Sample Described by Customer as : GROUND WATER

Client Name

: Hindalco Industries Limited(Mines Division)

Client Address

: Lohardaga,

Postal Code

: 835203

State

: Jharkhand

Country

; India

Sample Type

: GROUND WATER

Received

: 18/03/2013

Registered

Marks on Sample

: 18/03/2013

: Location: Kajum Navatuli2

Quantity

: 5.5L app

Sample Collected

: 13.03.2013, time: 10.00 am

Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	ysis Method		Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	10.0	Hz	5	. 15
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
Tasto	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.20*		6.5	6.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	29.29	mg/L	200	200
Iron (as Fe)	IS:3025 (Part-2)	0.2	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	0.16	mg/L	1.0	1.5
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1 (
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff.1999)	5.39	mg/L	250	1000
Total Dissolved Soilds	IS:3025 (Part-16:1984 (Reaff.1998)	49.00	mg/L	500	200
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100m
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Absent	per 100ml		Absent/100n
Calcium (as Ca)	IS:3025 (Part-40) :1991 (Reaff.2003)	8.08	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46) :1994 (Reaff.1999)	2.21	mg/L	30	100

## Page 1 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No: KG13-002094.007

JOE No: KG13-002094

			))	JUE NO : KG	13-00209
# P ## #	Report Control No	: KGR0000013687			
Analysis	Method	Result	Unit	Requirer As per IS:	nent/Limit
	*				
				Acceptable	Permissil
Copper (as Cu)	IS:3025 (Part-2)	0.01	mg/L	0.05	
Manganese (as Mn)	IS:3025 (Part-2)	0.02	mg/L	0.1	(
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff 1998)	<2.00	mg/L	200	4
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	5.37	mg/L	45	No relaxati
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003) *	<0.001	mg/L	0.001	0.0
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff.1999)	<0.001	mg/L	0.001	No relaxati
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	<0.003	mg/L	0 003	No relaxati
Selenium (as Se)	IS:3025 (Part-2)	< 0.005	mg/L	0.01	No relaxati
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff.1999)	<0.005	mg/L	0.01	No relaxate
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxate
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	< 0.005	mg/L	0 01	No relaxation
Zinc (as Zn)	IS:3025 (Part-2)	0.11	mg/L	5	
Anionic Surface Active Agent (as MBAS)	IS:13428:2005: Annex K	<0.05	mg/L	0.2	1
Chromium (as Cr)	IS:3025 (Part-2)	< 0.01	mg/L	0.05	No relaxation
Mineral Oil	IS:3025 (Part-39):1991 (Reaff.2003)	<0.01	mg/L	0.5	No relaxation
Total Alkalinity (as CaCO3)	IS:3025 (Part-23):1986 (Reaff.2003)	31.99	mg/L	200	60
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0
Boron (as B)	IS:3025 (Part-57):2005	0.12	mg/L	0.5	1
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	17.50	NTU	1	

#### Page 2 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No : KG13-002094.007

JOE No: KG13-002094

Report Control No : KGR0000013687

Per pro SGS India Private Lt

Mr. challedolf

Asish Chakraborty Laboratory Manager Authorized Signator:

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

#### Page 3 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No : KG13-002094.008

JOE No: KG13-002094

Report Control No : KGR0000013687

Sample Described by Customer as : GROUND WATER

Client Name

Client Address

: Hindalco Industries Limited(Mines Division) : Lohardaga,

Postal Code

: 835203

State

: Jharkhand

Country

: India

Sample Type Received

: GROUND WATER

: 18/03/2013

Registered

: 18/03/2013

Marks on Sample

: Location : Kujam-Bhatipath

Quantity

; 5.5L app

Sample Collected

: 13.03.2013,time :11.00 am

Test Start/End Date : 18/03/2013 - 01/04/2013

Analysis	Method	Result	Unit		ment/Limit 10500:2012
				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	5.0	Hz	5	1.5
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agree - id
Taste	IS:3025 (Part-8):1983 (Reaff,2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.10*		6.5	8.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	9 09	mg/L	200	500
Iron (as Fe)	IS:3025 (Part-2)	0.13	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	<0 10	mg/L	1.0	1.5
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	< 0.10	mg/L	0.2	1 4
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff,1999)	5.03	mg/L	250	1366
Total Dissolved Soilds	IS:3025 (Part-16 :1984 (Reaff.1996)	21.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100m
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Absent	per 100mi		Absent/100m
Calcium (as Ca)	IS:3025 (Part-40) :1991	3.03	mg/L	75	200
Magnesium (as Mg)	(Reaff.2003) IS:3025 (Part-46) :1994 (Reaff.1999)	<1.00	mg/L	30	100

Page 1 of 3

WIGRINING The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client or The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no insulty with regard to the origin or source from which the sample(s) is/are said to be extracted.

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Electrical otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 7 days (in case of penshable items) and 30 days for all other samples. The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without puer wolder appropriate that the Company SGS india Private Limited CS Plot -512(p). Mouze, Hanspukura Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone +91-33 649967029791

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Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.008

JOE No: KG13-002094

Analysis	Report Control No Method	: KGR0000013687 Result	Unit		nent/Limit 10500:2012
				Acceptable	Permissib
Copper (as Cu)	IS:3025 (Part-2)	< 0.01	mg/L	0.05	1
Manganese (as Mn)	IS:3025 (Part-2)	< 0.01	mg/L	0.1	0.
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff,1998)	<2.00	mg/L	200	4ŭ
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	<0.50	mg/L	45	No relaxatio
Phenolic Compound (as C6H5OH)	IS:3025 (Part-43):1992 (Reaff.2003)	<0.001	mg/L	0.001	0.00
Mercury (as Hg)	IS:3025 (Part-48):1994 (Reaff.1999)	<0.001	mg/L	0.001	No relaxatio
Cadmium (as Cd)	IS:3025 (Part-41):1992 (Reaff.2003)	<0.003	mg/L	0.003	No relaxation
Selenium (as Se)	IS:3025 (Part-2)	< 0.005	mg/L	0.01	No relaxatio
Arsenic (as As)	IS:3025 (Part-37):1988 (Reaff.1999)	<0.005	mg/L	0.01	No relaxation
Cyanide (as CN)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxation
Lead (as Pb)	IS:3025 (Part-47):1994 (Reaff.1999)	< 0.005	mg/L	0.01	No relaxation
Zinc (as Zn)	IS:3025 (Part-2)	0.14	mg/L	5	25
Anionic Surface Active Agent (as MBAS)	IS:13428:2005: Annex K	<0.05	mg/L	0.2	1 :
Chromium (as Cr)	IS:3025 (Part-2)	< 0.01	mg/L	0.05	No relaxation
Mineral Oil	IS:3025 (Part-39):1991 (Reaff 2003)	<0.01	mg/L	0.5	No relaxation
Total Alkalinity (as CaCO3)	IS:3025 (Part-23) :1986 (Reaff.2003)	12:13	mg/L	200	606
Aluminium (as Al)	IS:3025 (Part-55):2003	< 0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	0.13	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff,2006)	0.45	NTU	1	1.1

#### Page 2 of 3

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

Report No : KG13-002094.008

JOE No: KG13-002094

Report Control No : KGR0000013687

Per pro SGS India Private Lt

DV Challadol X

Asish Chakraborty **Laboratory Manager Authorized Signatory** 

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

## Page 3 of 3

WARNING The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Cheek's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no hability with regard to the origin or source from which the sample(s) is/are said to be extracted.

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# झारखण्ड राज्य प्रदूषण नियंत्रण पर्षद् 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 COMPEX, DHURWA, RANCHI-834004.

Phone No:-0651- 2400852, 2400851, Fax No:- 2400850.

Ref.No-PC/RNC/47/07-

D.	2000				
Da	te.	 	 ٠.	 	

#### CONSENT TO OPERATE

With reference to the application dated 28.08.2012 of G.M. (Operation), M/s Hindalo Industries Ltd; Court Road, I/C Kujam-I Bauxite Mines-80.87 Ha, P.O+Dist-Gumlan 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 At – Kujam-I, P.O + Dist-Gumlan for the period from 01.01.2013 to 31.12.2013 with the following conditions:

- That, he(they) shall not make any alteration, addition, deletion or modification in the mines without the prior clearance from the Board.
- 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.
- 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.
- 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.
- 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.
- 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 paragraph7.

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- 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, Bhubaneswar 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 31.12.2013 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, unit shall submit the status of compliance Environmental Clearance every quarter to the Board.
- 14. That, 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 roads.
- That, the unit shall ensure that no transport vehicle should ply on road without covering the materials.
- 18. That, the proponent shall submit compliance report of Environmental Clearance dated 14.08.2006 and submit photographs in compliance of special condition No. VII and IX of the same.

Sd/-

(Sanjay Kumar Sinha)
MEMBER SECRETARY

Memo no. PC/RNC/47/07- /6-341

Ranchi, Dated .... 31113

Copy forwarded to:- G.M. (Operation), M/S Hindalco Industries Ltd; (I/C Kujam-I Bauxite Mines-80.87 Ha.), Court Road, P.O+Dist- Lohardaga/ Deputy Commissioner, / D.F.O, Ranchi West Forest Division, Lohardaga/ D.M.O, G. Regional Officer, Regional Office, Ranchi for information & necessary action.

MEMBER SECRETARY

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## BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2012-13

The composite cost during the year 2012-13 (April to March) for environmental protection & pollution control by Jharkhand Mines division of Hindalco Industries Ltd for implementation the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115,13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha) and Bagru (75.41 Ha), Hisri, Chiro kukud, & Orsa pat.

Description	Budget (in Lakh Rs.)	Actual (in Lakh Rs.)  FY 2012-2013
Pollution Control & Environment monitoring	7.50	11.32
Reclamation/ Back filing & Rehabilitation	**	46.60
Green belt & Plantation	25.00	88.09
Rural Development	65.00	81.50
	Pollution Control & Environment monitoring  Reclamation/ Back filing & Rehabilitation  Green belt & Plantation	Pollution Control & Environment 7.50 monitoring  Reclamation/ Back filing & ** Rehabilitation  Green belt & Plantation 25.00

<sup>\*\*</sup>part of OB removed cost.

Convener

Environment Management Cell.



Date:20.03.13

#### 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, AGM (Quality & Environment), Convenor.

#### Members:

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

By order

Bijesh Kumar Jha
VP (Mines)

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

# DETAILS OF PRODUCTION, OVERBURDEN HANDLING, AREA MINED OUT AND AREA RECLAIMED FROM APR-12 TO MAR-13

SN	Name of Leases	Lease Area (in Ha)	Production (in MT)	Overburden Handling (in MT)	Mined Out Area (in Acres)	Reclaimed Area (in Acres)
1	Pakhar Bauxite Mines	8.09	78470	51682	0.75	1.10
2	Pakhar (115.13)	115.13	208503	425872	7.42	2.42
3	Gurdari	584.19	324648	832640	14.70	24.80
4	Kujam-l	80.87	149018	158530	14.70	12.10
2	Kujam-II	157.38	149542	677633	18.18	11.41
9	Amtipani	190.95	149579	468731	18.02	15.37
7	Shrengdag	155.81	259630	570878	19.50	35.00
∞	Serengdag Bauxite Mines	140.06	99772	133089	6.52	5.80
6	Jalim & Sanai	12.14	49505	34438	1.24	0.80
10	Bagru	75.41	84320	188767	1.78	69.6
11	Hisri New	14.55	99651	115676	1.24	0.00
12	Chiro-Kukud	152.57	64847	78598	3.13	5.37
M/s Mine	M/s Minerals & Minerals Limited					
1	Pakhar Bauxite Mines	15.58	34445	115848	1.25	2.00
2	Pakhar (109.507)	109.507	99840	204868	6.76	1.92