

Ref No: HIL/LHD/VP (M)/MoEF/ 119 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 Amtipani 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-11015/241/2005-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 **Amtipani** (190.95 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

# AMTIPANI BAUXITE MINES (190.95 Ha) Period: Oct'12 - March'13

## MoEF Environment Clearance ref: No J - 11015/241/2005-IA.II(M) dated 14 Aug'06

Sl No	Conditions	Compliance Status				
	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 (25m max) and as per the previous study conducted by authorized agency [Center for Ground Water Studies, Kolkata (WB)] 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 & used for reclamation and rehabilitation at appropriate time.				
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.	Concurrent backfilling of the waste in worked out quarry is being practiced. Also, the Wastes generated previously & stacked separately are being used for backfilling.				

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 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.	Commensurate with the progress of mining activities over the period of time, construction of catch drains and siltation ponds/parapet walls is under implementation.  Garland drains and sump pits have been planned to construct before rainy season.
7	Plantation shall be raised in an area of 79.3 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.	During 2012-13, plantation on 2.00 Acre land has been done.  Green belt development programme will keep pace with progress of mining activities.
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.	Study on Water resource evaluation and their development potential has been carried by Center for Ground Water Studies, Kolkata during Nov-Dec '06. It has been planned to consult with CGWB and finalize the issue of implementation of suitable conservation measure.
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.	
10	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation. Spring water is drawn from the down the hill pockets ponds for drinking purposes. Hence, as per the terms

		and conditions in Mining lease deed, we have permission from the Deputy Commissioner for drawl of water from the surface water bodies. Water cess is being paid regularly to Jharkhand State Pollution Control Board.
11	The project proponent shall monitor the spring discharge on long term basis (at lease one major spring) both in terms of quantity and quality of water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.	Complied.
12	Vehicular emissions should be kept under control 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.	Regular maintenance of vehicles are undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission.
13	Drills should either be operated with dust extractors or should be equipped with water injection system	Complied.
14	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented	Blasting time is fixed for Lunch Time i.e. 12.00 Noon -1.00 PM All efforts are being taken to mitigate impact of blasting.
15	Consent to operate should be obtained from SPCB prior to start of production of mine	Consent to operate obtained (Annexed)
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	
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	Complied.
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.	Shall be complied.
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 Plan will be submitted at appropriate time. Presently we are having approved progressive mine Closure Plan

final mine closure for approval.	

## **GENERAL CONDITIONS**

Sl No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Agreed
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	Agreed
3	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife departments.	Being carried out.
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. Monitoring 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.	Monitoring report annexed
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water tanker with sprinkling facility have been provided along haul roads, loading unloading & at transfer points to arrest dust emission.

7	M 1 111 41 C 41 C 4	C 1' 1
7	Measures should be taken for control of noise	Complied.
	levels below 85 dBA in the work environment.	PPEs are provided to workers.
	Workers engaged in operations of HEMM, etc.	***
	should be provided with ear plugs / muffs.	
8	Industrial waste water (workshop and waste	Presently, there is no effluent discharge from
	water from the mine) should be properly	Mine.
	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.	
9	Personnel working in dusty areas should wear	PPE's provided.
	protective respiratory devices and they should	Periodic training on safety & occupational
	also be provided with adequate training and	health is being imparted to workers and
	information on safety and health aspects.	health check up conducted.
	Occupational health surveillance program of	nearth effect up conducted.
	the workers should be undertaken periodically	
	1	
	to observe any contractions due to exposure to	
10	dust and take corrective measures, if needed.	41 1 0 1 11 0
10	A separate environmental management cell	Already formed and informed. (Annexed)
	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	
11	The project authorities should inform to the	Final mine closure plan will be submitted at
	Regional Office located at Bhubneshwar	appropriate time. Presently we are having
	regarding date of financial closures and final	approved progressive mine closure plan.
	approval of the project by the concerned	approved progressive initie crossic plan.
	authorities and the date of start of land	
	development work.	
12		Compared hardest hard hard hard hard hard hard hard hard
12		Separate budget has been prepared for the
	protection measures should be kept in separate	purpose. (Annexed)
	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.	
13	The project authorities should inform to the	Vide Point no. 11 above.
	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	
1.4	development work.	A second
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 concerned Panchayat / local NGO, if any, from whom and suggestion / representation has been received while processing the proposal.	Complied
16	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	Complied
17	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">httD://envfor.nic.in</a> 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

SAMPLE IDENTIFIED AS : AMBIENT AIR QUALITY MONITORING

**CUSTOMER NAME** 

HINDALCO INDUSTRIES LIMITED (MINES DIVISION)

**ADDRESS** 

LOHARDAGA, JHARKHAND

CITY

835302

COUNTRY

**INDIA** 

SAMPLING METHOD

NA

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 T

11/10/2012 /2012

EST	END	DATE		19/10/
			TESTS	

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.

A. A. Author Asish Chakraborty Manager Laboratory

Page 1 of 1

A.R. Dutte Pomist our OFF

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at "This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Clent's instructions, if any. The Company's sole responsibility is to its Client and this document does not exponente parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or fatsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless 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 perishable 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 prior written approval of the

SGS India Pvt. Ltd. I

Laboratory, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata-700104 Phone: +91: 33 64996701/64996700.

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



JOE No.: 1212806597

## **TEST REPORT**

Report No.: CA:GL:3120015208

Report Control No.:3125016391

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: CHATAM VILLAGE (BUFFER ZONE)

Lynn

DATE: 19/10/2012

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

SAMPLE RECD ON TEST START DATE

11/10/2012

**TEST END DATE** 

11/10/2012 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

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

per pro SGS India Private Ltd.

Asish Chakraborty Manager Laboratory

Page 1 of 1

A.R. Dom Therefore care @ \* •

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/ferms\_and\_conditions.htm. Attention is drawn to the limitation of liability indemnification and jursdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not excharate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, Unless 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 perishable 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 prior written approval of the

SGS India Pvt. Ltd. | Laboratory, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road.PO-Joka, South 24 Parganas, Kolkata-700104 Phone: +91: 33 64996701/64996700.

Regd & Corp. Off ; SGS House, 46, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com



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** 

SAMPLING METHOD

N.A.

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

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	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

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

per pro SGS India Private Ltd.

Asish Chakraborty Manager Laboratory

Page 1 of 1

Color dam or a

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/ferms\_and\_conditions.htm. Attention is drawn to the limitation of liability indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at that time of its intervention only and within the limits of Clenn's instructions, if any. The Company's sole responsibility is to its Client and this document does not exceed parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, Unless 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 perishable 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 prior written approval of the

SGS India Pvt. Ltd. | Laboratory, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road. PO-Joka, South 24 Parganas, Kolkata-700104 Phone: +91: 33 64996701/ 64996700.

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083 Tel: (022) 25798421 to 28 Fax: (022) 2579843110 35 www.sgs.com



Report No.: CA:GL:3120015210

JOE No.: 1212806597

DATE: 19/10/2012

Report Control No.:3125016393

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

SAMPLING METHOD

N.A.

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

TEST START DATE

11/10/2012 19/10/2012

TEST END DATE

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 \*\*\*\*

per pro SGS India Private Ltd.

Asish Chakraborty Manager Laboratory

Page 1 of 1

A. H. Centre Showld standon

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at "This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability,indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not excercise parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or fasification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the

SGS India Pvt. Ltd. | Laboratory, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata-700104 Phone: +91: 33 64996701/64996700.

Regd & Corp. Off ; SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083 Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



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 RK/LOCATION

**GURDARI PAKRIGRAH WELL** 

**COLLECTED ON** 

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	REQUIREMENT/LIMIT  As per IS  10500:1991(REAFF.19:  Desirable 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.

## Page 1 of 4

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent

of the law.

Unless 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 perishable 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 prior written

approval of the Company
SGS India Pvt. Ltd. Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone: 91-33-64996700, 64996701, Fax: 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



	DATE: 12/09/2012
Report No. : CA:GL:3120013023	DATE: 12/03/2012
Report No. : CA.GL.3120010020	

JOE No. : 1212805743	Control No.:3125014098	DEOLU T	REQUIREN	IENT/LIMIT
TESTS	PROTOCOL	RESULT	As per IS 10500:1991(REAFF.199	
			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/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/100m
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)	0.22 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	
MAGNESIUM ( as Mg)	IS 3025:PART 46 :1994(Reaff.1999)	<1.0 mg/l	30mg/l	100mg/l
MANGANESE	IS:3025(PART 59) 2006	0.07 mg/l	0.1mg/l	0.3mg/l

## Page 2 of 4

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

of the law.

Unless 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 perishable items) and 30 unless 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 perishable 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 prior written 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 prior written 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 prior written 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 prior written 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 prior written 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 prior written 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 prior written days for all other samples.

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com



DATE: 12/09/2012 Report No.: CA:GL:3120013023

Control No.:3125014098 JOE No.: 1212805743 REQUIREMENT/LIMIT RESULT PROTOCOL TESTS As per IS 10500:1991(REAFF.1993 Permissible Desirable No Relax. 0.001mg/l IS 3025:PART 48 <0.001 mg/l MERCURY (as Hg) :1994(Reaff.1999)BY **ICPOES** 0.03mg/l BDL(DL-0.01 mg/l) 0.01mg/l CLAUSE 6 OF IS MINERAL OIL 3025:PART 39:1991(Reaff. 2003) 45ma/l No Relax. 1.93 mg/l IS 3025:PART 34 NITRATE :1988(Reaff.1999) Unobject. Unobjectionable Unobject. IS 3025:PART ODOUR 5:1983(Reaff.2002) No Relax. 6.5-8.5 7.2 \* IS 3025:PART pН 11:1983(Reaff.2002) 0.001mg/l 0.002mg/l <0.001 mg/l IS 3025(Part PHENOLIC COMPOUNDS (as C6H5OH) 43)1992(Reaff 2005) 0.2mg/l <0.10 mg/l \* GEN/SOP/CALLAB-13 RESIDUAL FREE CHLORINE No Relax. 0.01mg/l IS 3025:PART 56:2003 <0.005 mg/l SELENIUM (BY ICPOES) 400mg/l 200mg/l CLAUSE 4 OF IS <2.0 mg/l SULPHATE 3025:PART 24:1986(Reaff. 2003 Agreeable Agreeable IS 3025:PART 7 TASTE :1984(Reaff.2002) 10/100 ml <2 MPN/100ml **Total Coliforms** 1622:1981(Reaff.2003) 600mg/l 300mg/l 11.40 mg/l IS 3025:PART 21 TOTAL HARDNESS (as CaCO3) :1983(Reaff.2002) 10NTU 5.0NTU 8.20 IS 3025:PART 10 TURBIDITY( in NTU ) :1984(Reaff.2002)

## Page 3 of 4

of the law.

Unless 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 perishable items) and 30 Unless 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 perishable items) and 30 Unless 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 perishable items) and 30 Unless 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 perishable items) and 30 Unless 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 perishable items) and 30 Unless otherwise stated the results shown in this test report refer only to the sample (s) tested and such sample (s) are retained as specified. 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 prior written

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

<sup>&</sup>quot;This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at "This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent



Report No. : CA:GL:3120013023		: 12/09/2012	
Control No.:3125014098			
PROTOCOL	RESULT	As	MENT/LIMIT per IS (REAFF.199 ) Permissible
IS 3025 Part 49:1991(Reaff.2003) BY ICPOES	0.25 mg/l	5mg/l	15mg/l
IS 3025:PART 16:1984(Reaff.2002)	24 mg/l	500mg/l	2000mg/
		***** End of	Report ****
	PROTOGOL  IS 3025 Part 49:1991(Reaff.2003) BY ICPOES IS 3025:PART	Control No.:3125014098  PROTOCOL RESULT  IS 3025 Part 0.25 mg/l 49:1991(Reaff.2003) BY ICPOES IS 3025:PART 24 mg/l	PROTOCOL RESULT REQUIRER  As.  10500:1991  Desirable  IS 3025 Part 0.25 mg/l 5mg/l  49:1991(Reaff.2003) BY ICPOES  IS 3025:PART 24 mg/l 500mg/l

per pro SG\$ India Private Ltd.

Dr.Nemai Ghosh Manager Laboratory

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The is advised that information contained hereon reflects the Company's sole responsibility is to its Client and this document does not exone rate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent

of the law.

Unless 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 perishable items) and 30 Unless 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 perishable items) and 30 Unless 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 perishable items) and 30 days (or all other samples). The samples from regulatory bodies are to be retained as specified. This document cannot be reproduced except in full, without prior written

approval of the Company
SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700,64996701, Fax : 91-33-24470267
SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700,64996701, Fax : 91-33-24470267

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com



Report No.: CA:GL:3120013020

DATE: 11/09/2012

JOE No.: 1212805742

Control 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

SAMPLE CONDITION SAMPLE QTY.

IN PLASTIC BOTTLE

6.5L APP

MARK/LOCATION

KUJAM-BHATIAPAT

**COLLECTED ON** REGISTERED ON 30.08.12, TIME:1.30 PM 01/09/2012

**TEST START DATE** 

01/09/2012

TEST END DATE

11/09/2012

TESTS	PROTOCOL	RESULT	As	MENT/LIMIT per IS (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.

## Page 1 of 4

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 prior written approval of the Company
SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone: 91-33-64996700,64996701, Fax: 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com

<sup>\*</sup>This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not experate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) lested and such sample(s) are retained for 7 days (in case of perishable items) and 30



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

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

## Page 2 of 4

of the law.

Unless 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 perishable 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 prior written approval of the Company
SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone: 91-33-64996700,64996701, Fax: 91-33-24470267

SGS India Pvt. Ltd.

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com

<sup>&</sup>quot;This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent



Report No. : CA:GL:3120013020		DATE: 11/09/2012	
JOE No. : 1212805742	Control No.:3125014051		

Control No.:3125014051 **TESTS** PROTOCOL RESULT REQUIREMENT/LIMIT

12010	THOTOGOL	TILO O L. I	KEGOIKEMEN I/ CHAIT	
			As per IS 10500:1991(REAFF.1993	
			Desira ble	) Permiss ible
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.
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/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/l
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	1.90	5.0NTU	10NTU

### Page 3 of 4

of the law.

Unless 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 perishable 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 prior written approval of the Company
SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone: 91-33-64996700,64996701, Fax: 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com

<sup>&</sup>quot;This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exone rate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent



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

JOE No.: 1212805742

Control No.:3125014051

TESTS PROTOCOL RESULT REQUIREMENT/LIMIT As per IS 10500:1991(REAFF.1993 ) Permissible Desirable

ZINC (as Zn)

IS 3025 Part

<0.01 mg/l

5mg/l

49:1991(Reaff.2003) BY ICPOES

15mg/l

**TOTAL DISSOLVED SOLIDS** 

**IS 3025:PART** 

24 mg/l

500mg/l

2000mg/l

16:1984(Reaff.2002) 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

\* Analysed at site

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

per pro \$GS India Private Ltd.

Dr.Nømai Ghosh Manager Laboratory

### Page 4 of 4

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at this documents issued by the company truck in a General Condition is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exone rate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent

of the law.

Unless 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 perishable 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 prior written

approval of the Con SGS India Pvt. Ltd.

atory, Behala Industrial Complex, Phase II,First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700,64996701, Fax : 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com



Report No. : CA:GL:3120013019

JOE No.: 1212805741

DATE: 11/09/2012

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

30/09/12, TIME:12.30 PM

"EGISTERED ON

01/09/2012

EST START DATE **TEST END DATE** 

01/09/2012 11/09/2012

TESTS	PROTOCOL	RESULT	As	MENT/LIMIT per IS 1(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	<0.02 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
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

of the law.
Unless 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 perishable 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 prior written approval of the Company SGS India Pvt. Ltd. | Labo SGS India Pvt. Ltd.

tory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone: 91-33-64996700,64996701, Fax: 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com

<sup>&</sup>quot;This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent



0013019	DATE: 11/09/2012
Control No :3135014050	DATE: 11/09/2012
	0013019 Control No.:3125014050

	Control No.:3125014050		Security	
TESTS	PROTOCOL	RESULT	REQUIRE	MENT/LIMIT
			As	per IS
			10500:199	1(REAFF.1993
			Desirable	l 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/l	100mg/l
MANGANESE	IS:3025(PART 59) 2006	<0.01 mg/l	0.1mg/l	0.3mg/l

### Page 2 of 4

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent

of the law.

Unless 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 perishable 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 prior written approval of the Company
SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone: 91-33-64996700,64996701, Fax: 91-33-24470267

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com



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

TESTS	PROTOCOL	RESULT		
		NESUET	As	MENT/LIMIT per IS 1(REAFF.199
MERCURY (as Hg)			Desirable	) Permissible
<del>-</del> ,	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/j
NITRATE	IS 3025:PART 34 :1988(Reaff 1999)	7.83 mg/l	45mg/l	No Relax.
ODOUR pH	IS 3025:PART 5:1983(Reaff.2002)	Unobjectionable	Unobject.	Unobject.
•	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/i	0.001mg/l	0.002mg/l
RESIDUAL FREE CHLORINE	GEN/SOP/CALLAB-13	<0.10 ppm*	0.2mg/l	: <del>**</del>
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 mi
OTAL HARDNESS (as CaCO3)	IS 3025:PART 21 :1983(Reaff.2002)	10.45 mg/l	300mg/I	600mg/I
TURBIDITY( in NTU )	IS 3025:PART 10 :1984(Reaff.2002)	2.04	5.0NTU	10NTU

cays for all other samples. The samples from regulatory bodies are to be retained as appointed.

Approval of the Company

SGS India Pvt. Ltd. | Laboratory, Behala Industrial Complex, Phase II, First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone: \$1-33-64996700,64996701, Fax: \$1-33-24470267

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhioli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.ags.com

<sup>\*</sup>This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The company's sole responsibility is to its Client and this document does not exone rate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent Unless 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 perishable items) and 30 approval of the Company



Report No. : CA:GL:31200130	19	DATE 44/00/00
JOE No. : 1212805741	Control No.:3125014050	DATE : 11/09/2012

TESTS PROTOCOL RESULT REQUIREMENT/LIMIT As per IS 10500:1991(REAFF.1993 2 Permiss ible Desirable

ZINC (as Zn)

IS 3025 Part

<0.01 mg/l

5mg/l

15mg/l

49:1991(Reaff.2003) BY ICPOES

TOTAL DISSOLVED SOLIDS

IS 3025:PART 16:1984(Reaff.2002)

24 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

\* Analysed at site

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

per pro SGS Inglia Private Ltd.

Dr.Nemai Ghosh Manager Laboratory

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction of the law.

of the law.

Only the sample of the sample o pany Laboratory, Behala Industrial Complex, Phase II,First Floor, 620, Diamond Harbour Road, Kolkata-700034 Phone : 91-33-64996700,64996701, Fax : 91-33-24470267

Regd & Corp. Off : SGS House, 4B, A. S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



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** 

: Hindalco Industries Limited(Mines Division)

**Client Address** 

: Lohardaga,

**Postal Code** 

: 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 6A

Sampling Site

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

Sample Collected

: 24.02.2013 : 2.5Kg app

Quantity

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

Analysis	Method	Result	Limit of Reporting (LOR)	Unit
Conductivity (1:5) Soil Suspention. (1:2 aqueous solution)	F.A.U.N (2007)	37.6	1.00	μs/cm
pH (1:2) Soil Suspention (1:2 equeous solution)	F.A.U.N (2007)	6	0.50	
Porosity	F.A.U.N (2007)	48.02		120
Bulk Density	By Bulk Density Apparatus	1.07	- 0.40	%
Phosphorus (as P)	F.A.U.N (2007)	<20.000	0.10	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	1.00	%
Silt	F.A.U.N (2007)	15.0	1.00	%
Available Chloride (as CI)	Soil & Agriculture Organization (U.N-2007)	<20.00	20.00	% mg/kg
Available Nitrogen	Food & Agriculture Organization (U.N-2007)	322.46	20.00	mg/kg

Page 1 of 2

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

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083, Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sqs.com



SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

**Print Date** 

: 22/03/2013

Report No : KG13-001961.001

JOE No : KG13-001961

Analysis		R0000012735		
Alialysis	Method	Result	Limit of Reporting (LOR)	Unit
Available Potassium (as K)	Soil & Water Book By P.K. Gupta	1577.59	1.00	mg/kg
Available Magnesium (as Mg)	Soil & Water Book By P.K. Gupta	2378.12	1.00	mg/kg
Lead (as Pb)	USEPA 3052	18.73	2.00	mg/kg
Chromium (as Cr)	USEPA 3052	95.95	2.00	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

yarma=>

Satya Manna

Section Incharge - ENVI **Authorized Signatory** 

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

Page 2 of 2

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document ntp://www.sgs.com/rerms\_and\_conditions.htm. Attention is drawn to the limitation or liability, indeminination and jurisdiction issues defined therein. Any noticer or inis document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p) ,Mouza, Hanspukuria,Diamond Harbour Road.PO-Joka, South 24 Parganas.Kolkata - 700104 Phone: +91 33 64996700/6701

Regid & Corp. Off ; SGS House, 4B, A.S. Marg. Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com

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

: Lohardaga,

Postal Code

: 835203

State

: Jharkhand

Country Sample Type

: India

Received

: SOIL(COMPOSITE)

Registered

: 12/03/2013

Marks on Sample

: 12/03/2013

Sampling Site

: Location:Reclaimed area in quarry 6B : 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. (1:2 aqueous solution)	F.A.U.N (2007)	30.5	1.00	µs/cm
pH (1:2) Soil Suspention	F.A.U.N (2007)	6	0.50	p3/011
(1:2 aqueous solution) Porosity	F.A.U.N (2007)	50.25		
Bulk Density	By Bulk Density Apparatus	_	~	%
Phosphorus (as P)	F.A.U.N (2007)	1.05	0.10	gram/ml
Texture	F.A.U.N (2007)	<20.000	20.00	mg/kg
Clay	F.A.U.N (2007)	Clay	-	
Sand	- 27 - 27 - 27 - 28 - 28 - 27 - 27 - 27	42.5	5.00	%
Silt	F.A.U.N (2007)	40.0	1.00	%
	F.A.U.N (2007)	17.5	1.00	%
Available Chloride (as CI)	Soil & Agriculture Organization (U.N-2007)	21.56	20.00	
Available Nitrogen	Food & Agriculture Organization (U.N-2007)	339.84	20.00	mg/kg mg/kg

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document sole responsibility is to its Client and this document does not expectate parties to a transaction from exercising all their rights and obligations under the transaction documents. is advised that information contained neteon reflects the Company's lindings at the time of its intervention only and within the limits of Chert's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p) , Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off: SGS House, 48, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sqs.com



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 : KG	R0000012735	in-billiowa cua water and a second	
- Tildiyala	Method	Result	Limit of Reporting (LOR)	Unit
Available Potassium (as K)	Soil & Water Book By P.K. Gupta	1769.11	1.00	mg/kg
Available Magnesium (as Mg)	Soil & Water Book By P.K.	2304.82	1.00	979 NW
Lead (as Pb)	Gupta USEPA 3052	10.84	2.00	mg/kg
Chromium (as Cr)	USEPA 3052	62.20	2.00	mg/kg
Mercury (as Hg)	USEPA 3052	<1.00	1.00	mg/kg mg/kg
Total Organic Matter	Black & Walkely Wet Digestion Method	0.69	0.01	%

Per pro SGS India Private Ltd

yarma==

Satya Manna

Section Incharge - ENVI **Authorized Signatory** 

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

Page 2 of 2

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 to the origin or source from which the sample(s) is/are said to be extracted.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable items) and 30 of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas. Kolkata - 700104 Phone: +91 33 64996700/6701 Repd & Corp. Off : SGS House, 4B, A.S, Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com



**Print Date** 

: 18/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001952.001

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

· India

Sample Type

: AMBIENT AIR QUALITY MONITORING

Received Registered : 12/03/2013

Marks on Sample

: 12/03/2013 : Location : Mines Lease Area, 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 Requirement/Limit as Per **NAAQS** Min Max IS:5182 (Part-23):2006 ug/m3 100 Particulate Matter (PM10) USEPA CFR(40) Appendix-L 41.36 60 ug/m3 Particulate Matter (PM2.5) IS:5182 (Part-6):1975 8.19 ug/m3 80 Oxides of Nitrogen (NOx) (Reaff.2004) IS:5182 (Part-2):2001 <5.00 ug/m3 80 Sulphur Dioxide (SO2) (Reaff.2006) By NDIR Spectroscopy. < 0.10 PPM Carbon Monoxide

Remark: CO Analyzed at site.

## Page 1 of 2

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company

SGS India Pvt. Ltd

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road. PO-Joka, South 24 Parganas. Kolkata - 700104 Phone: +91 33 64996700/6701

Read & Corp. Off: SGS House, 48, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com



Report No : KG13-001952.001

## Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date

: 18/03/2013

EL DIVITIO DO MONTO TILLID.

JOE No : KG13-001952

Report Control No

: KGR0000012027

Per pro SGS India Private Ltd

Satya Manna

Marma ->

Section Incharge - ENVI

**Authorized Signatory** 

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

### Page 2 of 2

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road. PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel ; (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



SAMPLE DRAWN BY SGS INDIA PVT. LTD.

**Print Date** : 18/03/2013

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

: India

Sample Type

Report No : KG13-001952.002

Received

: AMBIENT AIR QUALITY MONITORING : 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	Result	Result	Unit	Requirement/Limit as F	
				Min	Max		
Particulate Matter (PM10)	IS:5182 (Part-23 ):2006	79	ug/m3	-1	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

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's findings are appropriate and the company of the company o sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road. PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 54996700/6701

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com



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

Marmon ?

Satya Manna

Section Incharge - ENVI **Authorized Signatory** 

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

## Page 2 of 2

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas. Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com



**Print Date** 

: 18/03/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-001952.003

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

· 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	Result	Result	Unit		ent/Limit as Pei NAAQS
				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	•0	80		
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	<del></del> :	80		
Carbon Monoxide	By NDIR Spectroscopy.	<0.10	PPM				

Remark: CO Analyzed at site.

## Page 1 of 2

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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 prior written approval of the Company Unless 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 perishable items) and 30

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road. PO-Joka, South 24 Parganas. Kolkata - 700104 Phone: +91 33 64996700/6701

Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs.com



SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date

: 18/03/2013

Report No : KG13-001952.003

JOE No : KG13-001952

Report Control No

: KGR0000012027

Per pro SGS India Private Ltd

Warman =

Satya Manna Section Incharge - ENVI

**Authorized Signatory** 

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

## Page 2 of 2

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

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's any unauthorized alteration formers or falsification of the content or appearance of this document is unlawful and offenders may be prospected to the fullest extent of the law. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p) , Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas. Kolkata - 700104 Phone: +91 33 64996700/6701 Read & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sqs.com



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

: India

Sample Type

: AMBIENT AIR QUALITY MONITORING

Received

: 12/03/2013

Registered

: 12/03/2013

Marks on Sample

Sampling Site

: Location : Rajadera Village, date : 23.02.2013 : Gurdari/Kujam-II/Amtipani/Kujam-I Bauxite Mines(Neterhal plateau)

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

Analysis	Method	Result	Result	Result	Unit		nent/Limit as Per NAAQS	
				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		60			
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	5.06	ug/m3	-	80			
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	<b>≈</b>	80			
Carbon Monoxide	By NDIR Spectroscopy.	<0.10	РРМ					

## Page 1 of 2

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083, Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sps.com



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

Marma >

Satya Manna

Section Incharge - ENVI

**Authorized Signatory** 

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

## Page 2 of 2

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

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p) , Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas. Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off : SGS House, 4B, A.S. Marg. Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com



Print Date: 02/04/2013

## SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

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

: Jharkhand

Country

: India

Sample Type

: SPRING WATER

Received

: 18/03/2013

Registered

: 18/03/2013

Marks on Sample

Analysis

: Location: Gurdari-Pol-pol Village

Quantity Sample Collected

: 5.5L app : 12.03.2013, time : 11.30 am

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

1				
			Acceptable	Permissible
IS:3025 (Part-4):1983 (Reaff.2006)	15.0	Hz	5	15
IS:3025 (Part-5):1983	Agreeable		Agreeable	Agreeable
IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
IS:3025 (Part-11):1983 (Reaff.2006)	7.20*		6.5	3.5
IS:3025 (Part-21):1983 (Reaff.2006)	12.12	mg/L	200	600
IS:3025 (Part-2)	0.80	mg/L	0.3	No relaxation
	<0.10	mg/L	10	1.5
IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	10
IS:3025 (Part-32):1988	<5.00	mg/L	250	1000
IS:3025 (Part-16 :1984	23.00	mg/L	500	2000
IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100m
	(Reaff.2006) IS:3025 (Part-5):1983 (Reaff.2006) IS:3025 (Part-8):1983 (Reaff.2006) IS:3025 (Part-11):1983 (Reaff.2006) IS:3025 (Part-21):1983 (Reaff.2006) IS:3025 (Part-2):1983 (Reaff.2006) IS:3025 (Part-60):2008 IS:3025 (Part-60):2008 IS:3025 (Part-32):1986 (Reaff.2003) IS:3025 (Part-32):1988 (Reaff.1999) IS:3025 (Part-16:1984 (Reaff.1996)	(Reaff.2006) IS:3025 (Part-5):1983	(Reaff.2006) IS:3025 (Part-5):1983	(Reaff. 2006)       IS: 3025 (Part-5):1983       Agreeable       Agreeable         (Reaff. 2006)       IS: 3025 (Part-8):1983       Agreeable       Agreeable         (Reaff. 2006)       IS: 3025 (Part-11):1983       7.20*       6.5         (Reaff. 2006)       IS: 3025 (Part-21):1983       12.12       mg/L       200         (Reaff. 2006)       IS: 3025 (Part-21):1983       <0.80

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at inttp://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the

Unless 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 perishable 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 prior written

SGS India Pvt. Ltd.

y SGS India Private Limited.CS Plot -512(p) , Mouza, Hanspukuria Diamond Harbour Road.PO-Joka, South 24 Parganas Kolkata - 700104 Phone. •91 33 64996700/6701 Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083, Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



Print Date: 02/04/2013

# SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002097.004

JOE No: KG13-002097

			,	OE No: KG13-002097
Analysis	Report Control No Method	: KGR0000013918 Result	Unit	Requirement/Limit As per IS:10500:2012
				Acceptable Permissible

Coliform bacteria				Acceptable	Permissit
	IS:1622-1981 (Reaffirmation 2003)	Present	per 100ml		Absent/100
Calcium (as Ca)	IS:3025 (Part-40):1991	3.23	mg/L	75	
Magnesium (as Mg)	(Reaff.2003) IS:3025 (Part-46) :1994	<1.00	***		20
Copper (as Cu)	(Reaff.1999) IS:3025 (Part-2)	1000000	mg/L	30	10
Manganese (as Mn)	IS:3025 (Part-2)	<0.01	mg/L	0.05	1
Sulphate (as SO4)	IS:3025 (Part-24):1986	0.07	mg/L	0.1	0
Nitrate (as NO3)	(Reaff.1998)	4.32	mg/L	200	40
	IS:3025 (Part-34):1988 (Reaff,1999)	0.70	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	< 0.001	mg/L	0.001	
Cadmium (as Cd)	(Reaff.1999) IS:3025 (Part-41):1992	<0.003			No relaxatio
Selenium (as Se)	(Reaff.2003) IS:3025 (Part-2)		mg/L	0.003	No relaxatio
Arsenic (as As)	IS:3025 (Part-37):1988	<0.005	mg/L	0.01	No relaxation
Cyanide (as CN)	(Reaff, 1999)	<0.005	mg/L	0.01	No relaxation
ead (as Pb)	IS:3025 (Part-27):1986 (Reaff.2003)	<0.020	mg/L	0.05	No relaxation
And the second second	IS:3025 (Part-47):1994 (Reaff.1999)	0.034	mg/L	22.0	No relaxation
inc (as Zn)	IS:3025 (Part-2)	< 0.01	mg/L	5	
nionic Surface Active Agent (as	IS:13428:2005: Annex K	< 0.05	mg/L	0.2	15
hromium (as Cr)	IS:3025 (Part-2)		9. c	U.E	1 ()
ineral Oil	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
luminium (as AI)	IS:3025 (Part-23):1986 (Reaff.2003)	16.55	mg/L	200	600
oron (as B)	IS:3025 (Part-55):2003	0.49	mg/L	0.03	0.2
urbidity	IS:3025 (Part-57):2005	0.12	mg/L	0.5	
abidity	IS:3025 (Part-10):1984 (Reaff.2006)	4.55	-	1	1.0

### 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 with regard to the origin or source from which the sample(s) is/are said to be extracted.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible all social printed social conditions in the limitation of liability, indemnification and jurisdiction issues defined theren. Any holder of this The Company's sole responsibility is to its Client and this document does not exponent by a transaction from exercising all their rights and obligations under the fullest extent of the law.

Diploss 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 perishable 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 prior written SGS India Pvt. Ltd.

y SGS India Private Limited, CS Plot -\$12(p). Mouza, Hanspukuria Diamond Harbour Road PO-Joka, South 24 Parganas Kolketa - 700104 Phone: +91 33 04896700/6701

Regd & Corp. OII : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fex : (022) 25798431 to 35 www.sgs.com



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

Requirement/Limit As per IS:10500:2012

Acceptable Permissible

Remark: \*Analyzed at site.

Per pro SGS India Private Lt

Der of already of

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 ent'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

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

Unless 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 perishable 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 prior written approval of the Compan

SGS India Pvt. Ltd.

SGS India Private Limited CS Plot -512(p) ,Mouza, Hanspukuria Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083, Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com



Print Date: 02/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

KG13-002097.005 Report No :

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

Country

· India

Sample Type

: SPRING WATER

Received

: 18/03/2013

Registered

: 18/03/2013

Marks on Sample

: Location: Kujum-Deepa Kujam

Quantity

: 5.5L app

Sample Collected

: 13.03.2013, time: 12.00 pm

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

Analysis	Method	ethod Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissib
Colour	IS:3025 (Part-4):1983 (Reaff,2006)	5.0	Hz	5	1
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeabl
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeab
рН	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	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	<0.10	mg/L	1.0	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

### Page 1 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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996709/6701 Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



Print Date: 02/04/2013

No relaxation

No relaxation

No relaxation

No relaxation

No relaxation

15

1.0

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

Report No : KG13-002097.005

Cadmium (as Cd)

Selenium (as Se)

Arsenic (as As)

Cyanide (as CN)

JOE No: KG13-002097

	Report Control No : KGF	0000013918			
Analysis .	Method	Result	Unit		nent/Limit 10500:2012
				Acceptable	Permissible
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Present	per 100mi		Absent/100m
Calcium (as Ca)	IS:3025 (Part-40) :1991 (Reaff.2003)	1.41	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46) :1994 (Reaff.1999)	<1.00	mg/L	30	100
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	0.3
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	2.33	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	< 0.001	mg/L	0.001	No relaxation

< 0.003

< 0.005

< 0.005

< 0.020

mg/L

ma/L

mq/L

mg/L

0.003

0.01

0.01

0.05

0.01

5

0.2

Lead (as Pb) IS:3025 (Part-47):1994 0.030 mg/L (Reaff, 1999) Zinc (as Zn) IS:3025 (Part-2) < 0.01 mg/L Anionic Surface Active Agent (as IS:13428:2005: Annex K < 0.05 mg/L MBAS) Chromium (as Cr) IS:3025 (Part-2) < 0.01 mg/L

(Reaff.1999)

(Reaff.2003)

(Reaff 1999) IS:3025 (Part-27):1986

(Reaff.2003)

IS:3025 (Part-2)

IS:3025 (Part-41):1992

IS:3025 (Part-37):1988

0.05 No relaxation Mineral Oil IS:3025 (Part-39):1991 < 0.01 mg/L 0.5 No relaxation (Reaff.2003) Total Alkalinity (as CaCO3) IS:3025 (Part-23):1986 5.52 ma/L 200 600 (Reaff.2003) Aluminium (as Al) IS:3025 (Part-55):2003 <0.03 ma/L 0.03 0.2 Boron (as B) IS:3025 (Part-57):2005 0.10 ma/L 0.5 1.0 Turbidity IS:3025 (Part-10):1984 2.15 NTU 5 (Reaff.2006)

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/lerms\_and\_conditions.htm">http://www.sgs.com/lerms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

Unless 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 perishable 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 prior written approval of the Company

SGS India Pvt. Ltd

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 02/04/2013

Report No: KG13-002097.005

JOE No: KG13-002097

Analysis

: 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

Av challants 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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not experience parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the

Unless 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 prior written

approval of the Company

SGS India Private Limited, CS Plot -512(p) . Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas, Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off ; SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

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

835203

State

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	ysis Method Res		Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Colour	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	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)	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	1090
Total Dissolved Soilds	IS:3025 (Part-16 :1984 (Reaff.1996)	18.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100-in
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	100

Page 1 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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm 
Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein 
Any holder of this occument is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written

approval of the Company
SGS India Private Limited CS Plot -512(p) Mouza Hanspukuria Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone. +91 33 6499670076701 Regd & Corp. OH: SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbei-400083, Tel: (022) 25798421 to 28 Fax: (022) 25798431 to 35 www.sgs gon



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-002094.003

JOE No: KG13-002094

Analysis	Report Control No Method	: KGR0000013687 Result	Unit		ment/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	0	
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	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 relaxatio	
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)	0.04	mg/L	5	1 :	
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)	9 93	mg/L	200	<b>6</b> 50	
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 7	
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	3.50	NTU	1	1	

Remark: \*Analyzed at site.

### 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 hability with regard to the origin or source from which the sample(s) is/are said to be extracted.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible in http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any notice of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions of any notice of the Company's sole responsibility is to its Client and this document does not experience to a transaction from exercising all their nights and obligations under the number of the law.

Unless 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 36 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 prior soften

y SGS India Private Limited.CS Plot -512(p) .Mouza, Hanspukuna,Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 6499570067/11 SGS India Pvt. Ltd. Royd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbel-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002094.003

JOE No: KG13-002094

Report Control No

: KGR0000013687

Per pro SGS India Private Lt

Mr challestoty

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a> Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable items) and 50 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 prior written

approval of the Company
SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone. +91.33 64996700/6701 SGS India Pvt. Ltd. Regd & Corp. OH : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai 400083, Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



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

: Hindalco Industries Limited(Mines Division)

Client Address

Lohardaga,

Postal Code

: 835203

State

Jharkhand

Country

: India

Sample Type

: GROUND WATER

Received

: 18/03/2013

Registered

· 18/03/2013

Marks on Sample

: Location: Gurdari-Sagatali

Quantity

; 5.5L app

Sample Collected

: 12.03.2013, time: 11.00 am

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

Analysis	Analysis 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	Agreeable	
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable	
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.00*	M	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	10	
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 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)	5.25	mg/L	75	200	
Magnesium (as Mg)	IS:3025 (Part-46) :1994 (Reaff.1999)	<1.00	mg/L	30	100	

Page 1 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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemrification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the

Unless 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 perishable 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 prior written

approval of the Company
SGS India Private Limited,CS Plot -512(p) .Mouza, Hanspukuria, Diamond Harbour Road,PO-Joka, South 24 Parganas, Kolkata - 700104 Phone. +91 33 64996700-6784 36S India Pvt. Ltd. Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



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			···
Analysis	Method	Result	Unit	- 15 m	nent/Limit 10500:2012
				Acceptable	Permissib
Copper (as Cu)	IS:3025 (Part-2)	0.05	mg/L	0.05	1
Manganese (as Mn)	IS:3025 (Part-2)	0.06	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)	5.07	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)	<0.005	mg/L	0.01	No reiaxatio
Zinc (as Zn)	IS:3025 (Part-2)	0.07	mg/L	5	1:
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)	20.96	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	0.13	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	27.50	NTU	1	į (

Remark: \*Analyzed at site.

### 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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the faller attent of the law.

Unless 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 perishable items 1 a pc 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 prior written approval of the Company

SGS India Private Limited.CS Plot -512(p) ,Mouza, Hanspukuria,Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996706/6701

SGS India Pvt. Ltd. Regd & Corp. Off.: SGS House. 4B, A.S. Marg, Vikhroli (West), Mumbai-400083, Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



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

Per pro SGS India Private Lt

Dr. Wahrenport

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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be presecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written

approval of the Company
SGS India Private Limited.CS Plot -512(p) Mouza. Hanspukuria Diamond Harbour Road.PO-Joka, South 24 Parganas Kolkata - 700104 Phone +91 33 64996700/6701 SGS India Pvt. Ltd. Regd & Corp. Off : SGS House, 48, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.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

Sample Described by Customer as : GROUND WATER

**Client Name** 

: Hindalco Industries Limited(Mines Division)

**Client Address** 

: Lohardaga,

**Postal Code** 

: 835203

State

Jharkhand

: India

Country Sample Type

Received

: GROUND WATER

Registered

: 18/03/2013

Marks on Sample

: 18/03/2013 : Location: Gurdari Deepapath

Quantity

: 5.5L app

Sample Collected

; 12.03.2013, time : 11.45 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)	10.0	Hz	5	1.5
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	
Taste	IS:3025 (Part-8):1983	Agreeable			Agreeapi
рН	(Reaff.2006) IS:3025 (Part-11):1983	7.10*		Agreeable	Agreeanii
Total Hardness (as CaCO3)	(Reaff.2006) IS:3025 (Part-21):1983	ST.		6.5	8.5
Iron (as Fe)	(Reaff.2006) IS:3025 (Part-2)	50.50	mg/L	200	600
Fluoride (as F)	IS.3025 (Part-60):2008	0.3	mg/L	0.3	No relaxation
Residual Free Chlorine	IS:3025 (Part-26):1986	0.45	mg/L	1.0	1.5
Chloride (as CI)	(Reaff.2003)	<0.10	mg/L	0.2	1.0
Total Dissolved Soilds	IS:3025 (Part-32):1988 (Reaff.1999)	10.77	mg/L	250	1000
	IS:3025 (Part-16 :1984 (Reaff.1996)	86.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		
Coliform bacteria	IS:1622-1981 (Reaffirmation	Absent	per 100ml		Absent/100m
Calcium (as Ca)	2003) IS:3025 (Part-40) :1991				Absent/100m
Magnesium (as Mg)	(Reaff.2003) IS:3025 (Part-46) :1994	12.12	mg/L	75	200
8/	(Reaff.1999)	4.91	mg/L	30	100

Page 1 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 Chem'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.

This gocument is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this The Company's sole responsibility is to its Client and this document does not expense to a transaction from exercising all their rights and obligations under the fullest extent of the law.

Unless 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 perishable 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 prior written

y SGS India Private Limited.CS Plot -512(p) ,Mouza, Hanspukuria,Diamond Harbour Road.PO-Joka, South 24 Parganas.Kolkata - 700104 Phone •91 33 6499670000 10 SGS India Pvt. Ltd. Regid & Corp., Off :: SGS House: 48, A.S. Marg. Vikhroli (Wast), Mumbai-400083. Tel : (022) 25798421 to 28 Fax (022) 25798431 to 35 www.asts.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002094.005

JOE No: KG13-002094

			,	JUE NO: KG	13-002094
	Report Control No	: KGR0000013687			The same sum
Analysis	Method	Result	Unit		ment/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	40
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff,1999)	10.02	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)	<0.005	mg/L	0.01	No relaxatio
Zinc (as Zn)	IS:3025 (Part-2)	0.02	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)	33.09	mg/L	200	60
Aluminium (as AI)	IS:3025 (Part-55):2003	< 0.03	mg/L	0.03	0.
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

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.

Unless 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 perishable 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 prior written approval of the Company

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/67501 SGS India Pvt. Ltd. Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessit at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law



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

Per pro SGS India Private Lt

Who words of

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written

approval of the Company

SGS India Private Limited.CS Plot -512(p) .Mouza. Hanspukura, Diamond Harbour Road, PO-Joka. South 24 Parganas. Kolkata - 700104 Phone. +91.33 64996706703 SGS India Pvt. Ltd. SGS India Private Limited Co Proc -5 (2p) induze. Heraponore, Plance (West). Mumbai-400083. Tel ; (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

: KGR0000013687

Report No: KG13-002094.006

JOE No: KG13-002094

Report Control No

Sample Described by Customer as : GROUND WATER

Client Name

Client Address

: Hindalco Industries Limited(Mines Division)

Postal Code

: Lohardaga,

: 835203

State

: Jharkhand

Country Sample Type

: India

Received

**GROUND WATER** 

Registered

18/03/2013 : 18/03/2013

Marks on Sample

: Location: Gurdari Kuttupani

Quantity

; 5.5L app

Sample Collected

: 12.03.2013, time : 2.00 pm

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

Analysis	nalysis Method		Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissibl
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	5.0	Hz	5	1:
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	600
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-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.8
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff,1999)	<5.00	mg/L	250	1000
Total Dissolved Soilds	IS:3025 (Part-15:1984 (Reaff.1996)	74.00	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 100ml		Absent/10(nn
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	12.93	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46) :1994 (Reaff.1999)	4.66	mg/L	30	100

Page 1 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 all 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 hability with regard to the origin or source from which the sample(s) is/are said to be extracted.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the finitest extent of the law.

Unless 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 perishable 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 prior written

y SGS India Private Limited CS Plot -512(p) Mouza, Hanspukuria Diamond Harbour Road PO-Joka. South 24 Parganas Kolkata - 700104 Phone +91 33 64996700/6701 SGS India Pvt. Ltd. Regd & Crirp. Off : SGS House, 48, A.S. Marg. Vikhruli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002094.006

JOE No: KG13-002094

				JOE NO: KG13-002094		
	Report Control No	: KGR0000013687				
Analysis	Method	Result	Unit	- 07 mm 2 m	ment/Limit 10500:2012	
5 2 4				Acceptable		
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	400	
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	0.002	
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	1 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

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company

SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas, Kolkata - 700104 Phone +91 33 64996700/6701 SGS India Pvt. Ltd. Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



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

Per pro SGS India Private Lt

Dr Or all copy of 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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions: if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the

Unless 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 perishable 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 prior written

SGS India Pvt. Ltd.

y SGS India Private Limited.CS Plot -512(p) .Mouza, Hanspukuria, Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone +91 33 64996700/670 Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

: KGR0000013687

Report No: KG13-002094.007

JOE No: KG13-002094

Report Control No

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

18/03/2013

Marks on Sample

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	Method	Result	Unit		nent/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	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff,2006)	7.20*		6.5	5.5
Total Hardness (as CaCO3)	IS:3025 (Part-21):1983 (Reaff.2006)	29.29	mg/L	200	300
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	10
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)	49.00	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 100ml		Absent/100m
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

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

Unless 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 perishable 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 prior written

approval of the Company

SGS India Private Limited CS Plot -512(p) Mouza, Hanspukuria Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701 Rend & Corp. Off ; SGS House, 48, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs som



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002094.007

JOE No: KG13-002094

				JUE NO: KG	13-002094
	Report Control No	: KGR0000013687	i i i		
Analysis	Method	Result	Unit		ment/Limit 10500:2012
				Acceptable	Permissible
Copper (as Cu)	IS:3025 (Part-2)	0.01	mg/L	0.05	1.5
Manganese (as Mn)	IS:3025 (Part-2)	0.02	mg/L	0.1	0.3
Sulphate (as SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	5.37	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	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)	0.11	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)	31.99	mg/L	200	600
Aluminium (as AI)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	0.12	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	17.50	NTU	1	5

### 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.

Unless 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 perishable 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 prior written

approval of the Company
SGS India Private Limited.CS Plot -512(p) Mouza, Hanspukuria, Diamond Harbour Road, PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/67/11 SGS India Pvt. Ltd.

Rayd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (Wost), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com

<sup>&</sup>quot;This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the following statements of the law.



Report No: KG13-002094.007

# **Test Report**

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date: 01/04/2013

JOE No: KG13-002094

Report Control No

: KGR0000013687

Per pro SGS India Private Lt

of a charlesty

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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions—any transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the

Unless 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 perishable 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 prior written

SGS India Pvt. Ltd.

y SGS India Private Limited, CS Plot -512(p), Mouza, Hanspukuria. Diamond Harbour Road, PO-Joka, South 24 Parganas. Kolkata - 700104 Phone. +91 33 54996700/6701 Regil & Corp. Off ; SGS House, 48, A.S. Marg, Vikhroli (West), Mumbai-400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sps.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002094.008

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

: 18/03/2013

Marks on Sample

Analunia

: 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	15
Odour	IS:3025 (Part-5):1983 (Reaff,2006)	Agreeable		Agreeable	Agree-no-
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	
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.5 1.0
Chloride (as CI)	IS:3025 (Part-32):1988 (Reaff.1999)	5.03	mg/L	250	1000
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 100ml		Absent/100m
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	3.03	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46) :1994 (Reaff.1999)	<1.00	mg/L	30	:00

Page 1 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 Chem'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 sinh regard to the origin or source from which the sample(s) is/are said to be extracted.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at obscurent is advised that information contained hereon reflects the Company's sole responsibility is to its Client and this document does not experience the company's sole responsibility is to its Client and this document does not experience to a transaction from exercising all their rights and obligations under the finitest extent of the law.

Unless 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 perishable 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 prior wester

y SGS India Private Limited CS Plot -512(p): Mouza, Hanspukura Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone: +91 33 64996700/6701 Regd & Corp. Off : SGS Hause, 4B. A.S. Marg, Vikhroli (Wast), Mumbai 400083, Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002094.008

JOE No: KG13-002094

	· ·			<b>302</b> 110 . 110	10 002001
	Report Control No :	KGR0000013687			
Analysis	Method	Result	Unit		ment/Limit 10500:2012
	= 100 ± 100			Acceptable	Permissibi
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)	<0.50	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	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)	0.14	mg/L	5	15
Anionic Surface Active Agent (as MBAS)	IS:13428:2005: Annex K	<0.05	mg/L	0.2	1 5
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	600
Aluminium (as AI)	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	į

### 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.

This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at http://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the

Unless 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 perishable 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 prior written

approvel of the Company
SGS India Private Limited CS Plot -512(p) Mouza, Hanspukuria Diamond Harbour Road PO-Joka, South 24 Parganas Kolkata - 700104 Phone +91 33 64596700/6731 SGS India Pvt. Ltd. Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai 400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sgs.com



Print Date: 01/04/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No: KG13-002094.008

JOE No: KG13-002094

Report Control No : KGR0000013687

Per pro SGS India Private Lt

What england

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 Chept'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.

"This document is issued by the Company under its General Conditions of Service printed overleaf or available on request and accessible at intp://www.sgs.com/terms\_and\_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless 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 perishable 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 prior written approval of the Company

SGS India Pvt. Ltd.

SGS India Private Limited CS Plot -512(p) ,Mouza, Hanspukuria,Diamond Harbour Road PO-Joko, South 24 Parganas Kolkata - 700104 Phone. +91 33 64996700/6701

Regd & Corp. Off : SGS House, 4B, A.S. Marg, Vikhroli (West), Mumbai 400083. Tel : (022) 25798421 to 28 Fax : (022) 25798431 to 35 www.sqs.com.

# झारखण्ड राज्य प्रदूषण नियंत्रण पर्षद् JHARKHAND STATE POLLUTION CONTROL BOARD

HIT CHIVE

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/48/07-

m					
Da	e				

### 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 Amtipani Bauxite Mines-190.95 Ha, P.O+Dist- Court La 1 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 – Amtipani, P.O + Dist- Court La 1 for consent under section 21 of the Air (Prevention & Control of Pollution) Act, 1981, he (they) is (are) granted consent to bring into use his(their) industrial plant to produce maximum 1,50,000 TPA of Bauxite At – Amtipani, P.O + Dist- Court La 1 for consent 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 – Amtipani, P.O + Dist- Court La 1 for consent under section 21 of the Air (Prevention & Control of Pollution) Act, 1981, he (they) is (are) granted consent to bring into use

- 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.

6

SAR

Tirkey/Con/11

- 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.]
- 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.
- 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. III and IX of the same.

Sd/-

(Sanjay Kumar Sinha)
MEMBER SECRETARY

Memo no. PC/RNC/48/07- 9.3/9

Ranchi, Dated 31.1.13

Tal VIII

Copy forwarded to:- G.M. (Operation), M/S Hindalco Industries Ltd; (I/C Amtipani Bauxite Mines-190.95 Ha.), Court Road, P.O+Dist- Lohardaga/ Deputy Commissioner, Court District District Process Division, Lohardaga/ D.M.O, Court Regional Officer, Regional Office, Ranchi for information & necessary action.

(Sanjay Kumar Sinha) MEMBER SECRETARY

SOMB

Tirkey/Con/12



# 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.

SI No	Description	Budget (in Lakh Rs.)	Actual (in Lakh Rs.)
			FY 2012-2013
1	Pollution Control & Environment monitoring	7.50	11.32
2	Reclamation/ Back filing & Rehabilitation	**	46.60
3	Green belt & Plantation	25.00	88.09
4	Rural Development	65.00	81.50

<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.

Distr. Lohardaga (Jharkhand)

# 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-I	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
8	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	9 69
11	Hisri New	14.55	99651	115676	1.24	00.0
12	Chiro-Kukud	152.57	64847	78598	3.13	5.32
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