



Ref No: HIL/LHD/VP (M)/MoEF/ 4 / 18

Date: 22.11.2013

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

Sub: Compliance Report of EC conditions for Chiro-Kukud (152.57 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period April' 2013 -Sep' 2013.

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

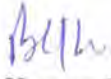
Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Chiro-Kukud (152.57 ha) Bauxite Mining project** of M/s Hindalco located in Gumla, Jharkhand for the period **April' 2013 -Sep' 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

CHIRO KUKUD BAUXITE MINES

Period : April'13 – Sep'13

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

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

9.	The overburden generated during the initial year shall be kept as temporary dump. Concurrent backfilling starts from the 2 nd year onwards and there shall be no external dump at the end of the mine life.	Complied
10.	The entire excavated area of 86 ha shall be reclaimed, out of which 66 ha land shall be returned to rayats for agricultural purpose and in 20 ha plantation shall be raised. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six month basis.	Will be complied with progress of mining work.
11	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.</p> <p>Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	Complied.
12	Dimension of the retaining wall at the OB benches within the mine to check run-off and siltation should be based on rainfall data.	Will be complied
13	Plantation shall be raised in an area of 20.0 ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.	Will be carried out with progress of mining activity. Around 3600 saplings has been planted during the FY 2013-14.
14	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Complied.

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

	conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.	
23	A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.	Final mine closure plan has been submitted at IBM 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 & Forest	Agreed.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Complied.
3	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , NO _x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Monitoring locations has been fixed and regular monitoring is being done. Monitoring Reports of AAQ data is attached as Annexure
4	Data on ambient air quality (RPM, SPM, SO ₂ , NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.	Complied. Monitoring Reports is attached as Annexure
5	Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water tanker with sprinkling facility have been provided for haul roads, loading unloading & at transfer points.
6	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc.	Complied. PPE provided to all operators within the work zone.

	should be provided with ear plug / muffs.	
7	Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May, 1993 and 31 st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Presently, there is no generation of waste water from the mine.
8	Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Complied. PPE provided to workers. Training is being provided through VT centre. Health survey will be done with progress of mining
9	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	Complied. A suitable environmental management cell has been developed with qualified personal. Copy enclosed.
10	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Final mine closure plan has been submitted at IBM for approval. Mining is being carried out as per IBM approved Scheme of Mining.
11	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Complied. (Annexure enclosed)
12	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Agreed.
13	The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests its	complied

	Regional Office, Bhubneshwar CPCB and State Pollution Control Board.	
14	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.	Complied
15	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.	Complied
16	The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Already done and copies submitted with earlier six monthly compliance report.



Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 18/06/2013

Report No : KG13-004486.001

JOE No : KG13-004486

Sample Described by Customer as : Report Control No : KGR0000023754
: 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 : 12/06/2013
 Registered : 13/06/2013
 Marks on Sample : Location : Kukud Pit, date : 03.06.2013
 Sampling Site : Chiro-Kukud Bauxite Mines
 Test Start/End Date : 13/06/2013 - 18/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	52	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	14.62	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.	<1.00	mg/m3		

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Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

Page 1 of 1

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Test Report

Print Date : 18/06/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-004486.002

JOE No : KG13-004486

Report Control No : KGR0000023754

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 : 12/06/2013
 Registered : 13/06/2013
 Marks on Sample : Location : Jaljali Village date : 03.06.2013
 Sampling Site : Chiro-Kukud Bauxite Mines
 Test Start/End Date : 13/06/2013 - 18/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	32	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	19.00	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	10.19	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	By NDIR Spectroscopy.	<1.00	mg/m3		

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Section Incharge - ENVI

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Page 1 of 1

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 18/06/2013

Report No : KG13-004486.003

JOE No : KG13-004486

Report Control No : KGR0000023754
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 : 12/06/2013
Registered : 13/06/2013
Marks on Sample : Location: Kudag Village, Date : 04.06.2013
Sampling Site : Chiro-Kukud Bauxite Mines
Test Start/End Date : 13/06/2013 - 18/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	17	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	7.80	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	6.40	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	By NDIR Spectroscopy.	<1.00	mg/m3		

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Satya Manna

Section Incharge - ENVI

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****End of Report****

Page 1 of 1

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Test Report

Print Date : 18/06/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-004486.004

JOE No : KG13-004486

Report Control No : KGR0000023754
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 : 12/06/2013
Registered : 13/06/2013
Marks on Sample : Location : Amtahi Village. date : 04.06.2013
Sampling Site : Chiro-Kukud Bauxite Mines
Test Start/End Date : 13/06/2013 - 18/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	58	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	26.47	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	10.09	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	By NDIR Spectroscopy.	<1.00	mg/m3		

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 28/10/2013

Report No : KG13-004447.001

JOE No : KG13-004447

Report Control No : KGR0000037634

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 : 12/06/2013
 Registered : 12/06/2013
 Marks on Sample : Location : Samri-Chirokukud
 Quantity : 5.5L app
 Sample Collected on : 08.06.2013, time : 10.15 am
 Test Start/End Date : 12/06/2013 - 21/06/2013

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)	7.10 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	155.93	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	1.07	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	0.41	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 Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	<5.00	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	194.00	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)	42.42	mg/L	75	200

Page 1 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004447.001

JOE No : KG13-004447

Report Control No : KGR0000037634

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	12.22	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)	0.10	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)	<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)	0.83	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)	175.27	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	<0.05	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	16.40	NTU	1	5

Remark : *Analyzed at site.

Page 2 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004447.001

JOE No : KG13-004447

Report Control No : KGR0000037634

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

Page 3 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004447.003

JOE No : KG13-004447

Report Control No : KGR0000037640

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 : 12/06/2013
 Registered : 12/06/2013
 Marks on Sample : Location: Kukud Village
 Quantity : 5.5L app
 Sample Collected on : 08.06.2013, time : 11.00 am
 Test Start/End Date : 12/06/2013 - 21/06/2013

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)	7.10 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	34.20	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	9.85	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	0.38	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 Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	5.35	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	62.00	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)	9.70	mg/L	75	200

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004447.003

JOE No : KG13-004447

Report Control No : KGR0000037640

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	2.44	mg/L	30	100
Copper (as Cu)	IS:3025 (Part-2)	0.05	mg/L	0.05	1.5
Manganese (as Mn)	IS:3025 (Part-2)	0.04	mg/L	0.1	0.3
Sulphate (as SO ₄)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO ₃)	IS:3025 (Part-34):1988 (Reaff.1999)	0.94	mg/L	45	No relaxation
Phenolic Compound (as C ₆ H ₅ OH)	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)	0.20	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 CaCO ₃)	IS:3025 (Part-23):1986 (Reaff.2003)	41.24	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	<0.05	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	54.50	NTU	1	5

Remark : *Analyzed at site.

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004447.003

JOE No : KG13-004447

Report Control No : KGR0000037640

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004447.006

JOE No : KG13-004447

Report Control No : KGR0000037646

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 : 12/06/2013
 Registered : 12/06/2013
 Marks on Sample : Location: Tatjharria Village
 Quantity : 5.5L app
 Sample Collected on : 08.06 2013, time : 1.00 pm
 Test Start/End Date : 12/06/2013 - 21/06/2013

Analysis	Method	Result	Unit	Requirement/Limit As per IS: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	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.30		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	135.81	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	<0.05	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	0.55	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 Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	6.78	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	178.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		Absent/100ml
Coliform bacteria	IS:1622:1981 (Reaffirmation 2003)	Absent	per 100ml		Absent/100ml
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	32.32	mg/L	75	200

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004447.006

JOE No : KG13-004447

Report Control No : KGR0000037646

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	13.45	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 SO ₄)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO ₃)	IS:3025 (Part-34):1988 (Reaff.1999)	<0.50	mg/L	45	No relaxation
Phenolic Compound (as C ₆ H ₅ OH)	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)	0.18	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 CaCO ₃)	IS:3025 (Part-23):1986 (Reaff.2003)	154.65	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	<0.05	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	0.05	NTU	1	5

Remark : *Analyzed at site.

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 28/10/2013

Report No : KG13-004447.006

JOE No : KG13-004447

Report Control No : KGR0000037646

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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****End of Report****

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TEST REPORT

Report No. : KG13-004499.008-011 Date : 13.06.2013

Client No. : KG13-004499 Report Control No. : KGR0000023175

SAMPLE DRAWN BY SGS INDIA PRIVATE LTD.

SAMPLE DESCRIPTION : MEASUREMENT OF NOISE LEVEL
NAME OF THE CLIENT : M/S. HINDALCO INDUSTRIES LIMITED
ADDRESS : MINES DIVISION, LOHARDAGA, JHARKHAND, PIN - 835 302
SAMPLING METHOD : INSTRUMENTAL, USING SOUND LEVEL METER
SAMPLING SITE : CHIRO KUKUD BAUXITE MINES
PROTOCOL : IS:9989/IS:7194
TEST START DATE : 13.06.2013
TEST END DATE : 13.06.2013

Table with 5 columns: SL NO., SAMPLING LOCATION, DATE & TIME OF SAMPLING, DAY TIME NOISE LEVEL dB (A) Leq, LIMIT AS PER WEST FACTORIES ACT dB(A) Leq / 8 Hrs. Exposure. Rows include locations like POCKLEN, DUMPER, WAGON DRILL, and COMPRESSOR.

Note: (i) The Value is the Leq of twenty readings taken in each location (Day time).
(ii) Day time shall mean from 8:00 am to 10:00 pm.

Checked by
Dipankar De Sarkar
Manager (Operations)

per pro SGS India Private Ltd.
Dr. Asish Chakraborty
Manager-Laboratory

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004452.001

JOE No : KG13-004452

Report Control No : KGR0000037735

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 : 12/06/2013
Registered : 12/06/2013
Marks on Sample : Location: Samri-Chirukukud
Quantity : 5.5L app
Sample Collected on : 08.06.2013, time : 10.00 am
Test Start/End Date : 12/06/2013 - 24/06/2013

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	5.0	H _z	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)	7.0 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	58.58	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	0.07	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 Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	6.78	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	94.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Present	per 100ml		
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	16.16	mg/L	75	200

Page 1 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004452.001

JOE No : KG13-004452

Report Control No : KGR0000037735

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	4.42	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)	0.02	mg/L	0.1	0.3
Sulphate (as SO ₄)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO ₃)	IS:3025 (Part-34):1988 (Reaff.1999)	2.97	mg/L	45	No relaxation
Phenolic Compound (as C ₆ H ₅ OH)	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)	<0.01	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 CaCO ₃)	IS:3025 (Part-23):1986 (Reaff.2003)	72.17	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	<0.05	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	0.25	NTU	1	5

Page 2 of 3

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 28/10/2013

Report No : KG13-004452.001

JOE No : KG13-004452

Report Control No : KGR0000037735

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

Page 3 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004452.002

JOE No : KG13-004452

Report Control No : KGR0000037737

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 : 12/06/2013
 Registered : 12/06/2013
 Marks on Sample : Location : Samri-Kudag Village
 Quantity : 5.5L app
 Sample Collected on : 08.06.2013, time : 10.30 am
 Test Start/End Date : 12/06/2013 - 24/06/2013

Analysis	Method	Result	Unit	Requirement/Limit As per IS: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	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff 2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.1 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	3.54	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	0.12	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 Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	<5.00	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	14.20	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		
Coliform bacteria	IS:1622:1981 (Reaffirmation 2003)	Present	per 100ml		
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff 2003)	1.01	mg/L	75	200

Page 1 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004452.002

JOE No : KG13-004452

Report Control No : KGR0000037737

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
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)	0.03	mg/L	0.1	0.3
Sulphate (as SO ₄)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO ₃)	IS:3025 (Part-34):1988 (Reaff.1999)	1.43	mg/L	45	No relaxation
Phenolic Compound (as C ₆ H ₅ OH)	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)	<0.01	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 CaCO ₃)	IS:3025 (Part-23):1986 (Reaff.2003)	5.16	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	<0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	<0.05	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	1.79	NTU	1	5

Page 2 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004452.002

JOE No : KG13-004452

Report Control No : KGR0000037737

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004452.003

JOE No : KG13-004452

Report Control No : KGR0000037739

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 : 12/06/2013
Registered : 12/06/2013
Marks on Sample : Location:Samri-Bhetpani
Quantity : 5.5L app
Sample Collected on : 08.06.2013, time : 3.00pm
Test Start/End Date : 12/06/2013 - 24/06/2013

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)	7.1 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	15.66	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	0.22	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 Cl)	IS:3025 (Part-32):1988 (Reaff.1999)	6.78	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	34.00	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Present	per 100ml		
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	4.44	mg/L	75	200

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Report No : KG13-004452.003

JOE No : KG13-004452

Report Control No : KGR0000037739

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	1.10	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)	0.14	mg/L	0.1	0.3
Sulphate (as SO ₄)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO ₃)	IS:3025 (Part-34):1988 (Reaff.1999)	<0.50	mg/L	45	No relaxation
Phenolic Compound (as C ₆ H ₅ OH)	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)	<0.01	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 CaCO ₃)	IS:3025 (Part-23):1986 (Reaff.2003)	21.91	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	0.03	mg/L	0.03	0.2
Boron (as B)	IS:3025 (Part-57):2005	<0.05	mg/L	0.5	1.0
Turbidity	IS:3025 (Part-10):1984 (Reaff.2006)	4.79	NTU	1	5

Page 2 of 3

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004452.003

JOE No : KG13-004452

Report Control No : KGR0000037739

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

Page 3 of 3

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 07/10/2013

Report No : KG13-007322.001

JOE No : KG13-007322

Report Control No : KGR0000035743
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 : 30/09/2013
Registered : 30/09/2013
Marks on Sample : Location : Jajjali Village, date : 11.09.2013
Sampling Site : Chiro-Kukud Bauxite Mines
Test Start/End Date : 30/09/2013 - 07/10/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	9	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	6.45	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	<5.00	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	EPA 600/P-99/001F	<1.00	mg/m3		

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

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Page 1 of 1

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 07/10/2013

Report No : KG13-007322.002

JOE No : KG13-007322

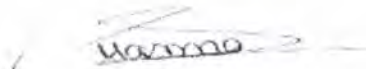
Report Control No : KGR0000035743

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 : 30/09/2013
Registered : 30/09/2013
Marks on Sample : Location : Kukud Pit, date : 11.09.2013
Sampling Site : Chiro-Kukud Bauxite Mines
Test Start/End Date : 30/09/2013 - 07/10/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	24	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	16.46	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	<5.00	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	EPA 600/P-99/001F	<1.00	mg/m3		

Per pro SGS India Private Ltd


Satya Manna
Section Incharge - ENVI
Authorized Signatory

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Test Report

Print Date : 07/10/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-007322.003

JOE No : KG13-007322

Report Control No : KGR0000035743

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 : 30/09/2013
 Registered : 30/09/2013
 Marks on Sample : Location : Kukud Village, date : 12.09.2013
 Sampling Site : Chiro-Kukud Bauxite Mines
 Test Start/End Date : 30/09/2013 - 07/10/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	19	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	14.50	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	<5.00	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	EPA 600/P-99/001F	<1.00	mg/m3		

Per pro SGS India Private Ltd

Satya Manna

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 07/10/2013

Report No : KG13-007322.004

JOE No : KG13-007322

Report Control No : KGR0000035743

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 : 30/09/2013
Registered : 30/09/2013
Marks on Sample : Location : Amtahi Village, date : 12.9.2013
Sampling Site : Chiro-Kukud Bauxite Mines
Test Start/End Date : 30/09/2013 - 07/10/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	14	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	9.68	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	<5.00	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide	EPA 600/P-99/001F	<1.00	mg/m3		

Per pro SGS India Private Ltd

Satya Manna
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Ref.No- PC/RNC/230/07-


Date.....

CONSENT TO OPERATE

With reference to the application dated 28.08.2012 of G.M. (Operation), M/s ~~Hindaleo~~ Industries Ltd; Court Road, I/C Chiro Kukud Bauxite Mines-152.57 Ha, P.O+Dist- ~~Latehar~~ for consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and that under section 21 of the Air (Prevention & Control of Pollution) Act,1981, he (they) is (are) granted consent to bring into use his(their) new/altered/existing outlet(s) for discharge of trade effluent and (or) domestic sewage and to operate his (their) industrial plant to produce maximum 1,00,000 TPA of Bauxite At – Chiro Kukud , P.O + Dist- ~~Latehar~~ for the period from 01.01.2013 to 31.12.2013 with the following conditions :

1. That, he(they) shall not make any alteration, addition, deletion or modification in the mines without the prior clearance from the Board.
2. That, he(they) shall abide by the obligations provided under section 24, 31 and 33A of the Water (Prevention & Control of Pollution) Act, 1974 and shall extend co-operation to the Board in performing its functions entrusted under section 20, 21, 23, 30 and 32 of the Act.
3. That, he(they) shall comply with the requirements of the Water (Prevention & Control of Pollution) Cess Act, 1977 read with the Water (Prevention & Control of Pollution) Cess Rules, 1978.
4. That, he(they) shall abide by the obligations provided under section 22, 23 and 31A of the Air (Prevention & Control of Pollution) Act, 1981 and shall extend co-operation to the Board in performing its functions entrusted under sections 24, 25 and 26 of the Act.
5. That, he(they) shall abide by the obligations provided under sections 5, 7, 8 and 9 of the Environment (Protection) Act, 1986 and shall extend co-operation in performing the functions entrusted under section 3, 10 and 11 of the Act.
6. That, he(they) shall abide by the applicable provisions of the Environment (Protection) Rules, 1986, the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008; the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989; the Bio-medical Waste (Management & Handling) Rules, 1998; the Municipal Solid Wastes (Management & Handling) Rules, 2000 and the Batteries (Management & Handling) Rules, 2001.
7. That, he(they) shall maintain the quality of discharge and (or) emission and (or) noise level of environmental pollutants in conformity with the standards as laid under Rule 3 of the Environment (Protection) Rules, 1986.
8. That, he(they) shall monitor his(their) effluent(s), emission(s) and the ambient air, noise level regularly and shall submit the report to the Board in compliance of the condition laid in paragraph 7.

9. That, he(they) shall establish well equipped environmental laboratory with the facilities of system(s) of continuous monitoring of effluent(s), emission(s) ambient water quality(ies), ambient air quality(ies) and ambient noise level(s) and transferring them (monitoring results) to his(their) website(s) and to the e-mail address(es) of the key persons of Jharkhand State Pollution Control Board, Zonal Office, Kolkata and Ministry of Environment & Forests, Regional Office, Bhubaneswar with simultaneous displaying at prominent locations in front of his(their)premises. [*Unit(s) of medium and large scale under 17 categories of polluting industries of category A of EIA Notification, 2006.]
10. That, he(they) shall submit the environmental statement every year by 30th September and shall harvest all rain water precipitating in the premises and do three tier tree plantation in the premises as air barrier.
11. That, he(they) shall submit application for consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and that under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days before the expiration of the consent order 31.12.2013 or within 120 days from the date of receipt of the order, whichever is earlier.
12. That, unit shall submit quality report of Ambient Air Quality and Ground Water Quality every quarter of the year.
13. That, unit shall submit the status of compliance Environmental Clearance every quarter to the Board.
14. That, unit) shall reclaim the mined out area in phased manner as per EIA/EMP report.
15. That, the unit shall implement harvest rain water of the mine and recharge it to the ground by the method of Central Ground Water Board Guideline that fits most to the mine.
16. That, the unit shall make arrangement to control the fugitive emissions occurring during the mining activities and plying of vehicles on haul as well as transport roads.
17. 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 17.05.2007 and submit photographs in compliance of special condition No. ~~VII~~ and ~~IX~~ of the same.

 XI and XIV

Sd/-

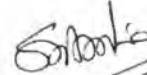
(Sanjay Kumar Sinha)

MEMBER SECRETARY

Memo no. PC/RNC/230/07- 9.344

Ranchi, Dated 31/1/15

Copy forwarded to:- G.M. (Operation), M/S Hindalco Industries Ltd; (I/C Chiro Kukud Bauxite Mines- 152.57 Ha.), Court Road, P.O+Dist- Lohardaga/ Deputy Commissioner, Lohardaga D.F.O, Ranchi West Forest Division, Lohardaga/ D.M.O, Lohardaga Regional Officer, Regional Office, **Ranchi** for information & necessary action.

 30/1

(Sanjay Kumar Sinha)

MEMBER SECRETARY



ADITYA BIRLA



BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2013-14

The composite cost during the year 2013-14 (April to Sep) for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals 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, Bhusar & Bimarla Bauxite Mines.

Sl No	Description	Budget (in Lakh Rs.) FY 2013-2014	Actual (in Lakh Rs.) FY 2013-2014 from April to Sep'13
1	Pollution Control & Environment monitoring	10.00	6.44
2	Reclamation/ Back filing & Rehabilitation	**	153.60
3	Green belt & Plantation	40.00	30.75
4	Rural Development	70.00	67.72

**Part of OB removed cost.

Convener

Environment Management Cell.



Date: 30.10.13

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:

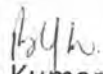
The Environment Management Cell will consist of:

1. B. K. Mahapatra, AGM (Quality & Environment), Convenor.

Members:

2. Utpal Gupta, Manager (Environment)
3. Biplab Mukherjee (Asst Manager Geology)
4. S. Joshi, Mines Manager (Bagru Mines)
5. A. Anbarasu, Mines Manager (Serengdag A)
6. Ajay Pandey, Mines Manager (Pakhar 109.507 Hect)
7. Kiran Sankar Singh, Mines Manager (Gurdari)
8. Vidya Sagar Singh, Mines Manager (Kujam)
9. Amar Bharati, Mines Manager (Amtipani)
10. S P Jha, Mines Manager (Pakhar)
11. Rajesh Ambastha, Mines Manager (Chiro Kukud & Orsa)

By order


Bijesh Kumar Jha
VP (Mines)

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

PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-13 TO SEP-13

Name of Mines	Mining lease area (Ha)	Mined Out area (in Acres)	Backfilled area (in Acres)	Production (in MT)	Overburden Removal (in Cub.M.)
Shrengdag Bauxite Mines	155.81	12.9	10.4	122730.00	176390
Gurdari Bauxite Mines	584.19	17.5	17.0	160515.00	280160
Jalim & Sanai	12.14	1.50	2.64	34760.00	23984
Serangdag	140.06	3.23	1.82	49625.00	39219
Pakhar Buxite Mines	115.13	1.50	2.90	161470.00	220120
Pakhar Buxite Mines	8.09	1.95	1.60	48570.00	23675
Kujam-I	80.87	5.96	6.54	71920.00	56720
Kujam-II	157.38	2.47	8.47	109580.00	26906
Amtipani	190.95	7.12	7.23	94155.00	85884
Chiro-Kukud	152.57	3.50	2.50	27939.00	25795
Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0.00
Hisri New	14.55	0.47	0.00	92649.00	5021
Bagru	75.41	0.38	0.10	54180.00	3384
Minerals & Minerals Limited					
Pakhar Buxite Mines	109.507	1.97	4.19	55920.00	55805
Pakhar Buxite Mines	15.58	1.10	1.50	25360.00	26712

Monitored Ground water level

Location (Mines)	Elevation (feet)	Elevation (Mtr)	Well type	Monsoon 2013		Post Monsoon 2013	
				Inside ML	Outside ML	Inside ML	Outside ML
Bagru	2970	905.4878049	Open Well		21.70		24.10
	2985	910.0609756	Open Well		24.20		24.50
	3001	914.9390244	Open Well		29.30		28.40
	2963	903.3536585	Open Well		22.90		33.10
	2983	909.4512195	Open Well		17.60		28.70
	3279	999.695122	Open Well		24.90		22.60
Pakhar	3552	1082.926829	Hand Pump	35.40		31.60	
	3370	1027.439024	Open Well		25.80		28.30
Sherengdag	3587	1093.597561	Hand Pump	41.80		39.58	
	3546	1081.097561	Hand Pump	39.60		31.26	
	3459	1054.573171	Hand Pump	33.10		27.50	
	3495	1065.54878	Hand Pump	27.70		26.13	
	3428	1045.121951	Hand Pump	29.34		27.85	
	3481	1061.280488	Hand Pump	28.30		24.87	
Gurdari	3472	1058.536585	Hand Pump	38.10		36.63	
	3527	1075.304878	Hand Pump	28.20		26.83	
	3526	1075	Hand Pump	28.30		29.32	
	3412	1040.243902	Open Well		33.90		21.80
	3414	1040.853659	Open Well		33.70		24.80
	3491	1064.329268	Hand Pump	31.50		28.60	
Chiro Kukud	3450	1051.829268	Hand Pump				21.12
	3765	1147.865854	Hand Pump	33.40		28.35	
	3776	1151.219512	Hand Pump	37.60		31.84	
	3556	1084.146341	Hand Pump	34.30		36.85	