

ADITYA BIRLA



Ref No: HIL/LHD/VP (M)/MoEF/ 419

Date: 22.11.2013

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

Sub: **Compliance Report of EC conditions for Bhusar (65.31 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga, Jharkhand for the period April' 2013 -Sep' 2013.**

Ref: **Environmental Clearance No-J-11015/184/2011-IA.II (M) dated 17th June 2013.**

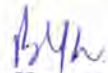
Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bhusar (65.31 ha) Bauxite** Mining project of M/s Hindalco located in Lohardaga, 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

HINDALCO INDUSTRIES LIMITED

Hindalco Complex
Court Road, Lohardaga-835302
Distt. Lohardaga (Jharkhand)

Telephone +91 6526 224112/224015/223113
Fax +91 6526 224118

Website www.hindalco.com

Bhusar Bauxite Mines of M/s Hindalco Industries Limited

Area 65.31 Ha-Period April'13 to Sep'13

Environmental Clearance No-J-11015/184/2011-IA.II (M) dated 17th June 2013.

SI No	Specific Condition	Compliance
(i)	All the conditions stipulated by the State Pollution Control Board in their NOC shall be effectively implemented.	Agreed & Complied.
(ii)	Environmental clearance is subject to obtaining clearance under the wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.	Wild life Management Plan has been submitted to Chief Wild Life Warden for approval. It is under consideration.
(iii)	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Shallow depth mining is being done in the Bagru Plateau. The ground water table is much below the working depth. Hence, ground water not intersected due to mining activities.
(iv)	The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operations.	Agreed. No natural water course will be obstructed due to mining activities.
(v)	Top soil should be stacked with proper slope at earmarked site(s) only with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Top soil will be stored temporarily and will spread over the back filled area in the process of reclamation.
(vi)	The entire waste generated shall be backfilled and there shall be no external over burden dump left at the end of the mine life. The entire backfilled area shall be reclaimed by plantation. The back filling should be carried out in such a manner that it is restored to the normal ground level. Monitoring	The over burden generated during the mining operation temporarily stacked at earmarked dump site (s) only for the purpose of backfilling, Backfilling area will be reclaimed by suitable plantation. Monitoring and management of rehabilitated area will continue until the vegetation becomes self-sustaining. Compliance status will be

	and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment as Forests and its Regional Office, Bhubaneswar on six monthly basis.	submitted to MoEF on six monthly basis.
(vii)	<p>Catch drains and siltation ponds of appropriate size should be constructed for the working pit, temporary OB dumps, if any and mineral dumps to arrest flow of silt and sediment. 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 of appropriate size, gradient and length shall be constructed for both mine pit and temporary dumps 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.</p>	<p>No run-off is generated from mining activities. However to collect & manage rain water during monsoon, part of mined out area is used as settling tank for the runoff. Rain water is being used for watering the mine area, roads, green belt development, sprinkling on haul roads etc.</p> <p>Garland drain of suitable size will be provided as & when required.</p>
(viii)	Dimension of the retaining wall at the toe of temporary dumps and OB benches within the mine to check run-off and siltation should be based on the rain fall data.	Complied.
(ix)	Plantation shall be raised in an area of 52.50 ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture Department at the end	It is already in practice. Phase wise plantation of native species in consultation with forest department will be carried out within the safety zone and mined out/reclaimed pits. Around 1000 sapling planted during FY 2013-14.

	of life of mine. The density of the trees should be around 2500 plants per ha.	
(x)	Regular water sprinkling should be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as haul road, loading and unloading point and transfer points. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Water tankers will be provided for sprinkling of water on road to contain dust. AAQ parameters are monitored on regular basis.
(xi)	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	A plan will be drawn on the basis of discussion with Scientists of State unit office of Central Ground Water Board, Ranchi to implement suitable conservation measures to augment ground water resources in the area (Bagru Plateau).
(xii)	Regular monitoring of ground water level and quality should be carried out in and around the mine lease 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 i.e. January, April-May, August, November and the data thus collected may be sent regularly to Ministry of Environment and Forests, its Regional Office, Bhubaneswar; Central Ground Water Authority and Central Ground Water Board.	Being complied. Water quality monitoring report is enclosed.
(xiii)	The project authorities should obtain prior approval of the competent authority for drawl of groundwater if any, required for the project.	Water is collected from Rain water harvesting pond and necessary water cess is being paid regularly to Jharkhand State Pollution Control Board for Bagru group of Mines.
(xiv)	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for	For our all operating mines regular maintenance of vehicles are undertaken to

	<p>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..</p>	<p>minimize vehicular emission. All the transporters have been instructed to obtain PUC for their vehicles from the concerned authority and submit to the concerned Officer for verification. Bauxite are transported through tarpaulin cover trucks or ropeway from Bagru Hill to Lohardaga siding.</p>
(xv)	<p>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</p>	<p>Blasting at Mines is done at fixed blasting period i.e 12.00 Noon to 1.00 PM on working days. Mobile mining activities are not being practiced during blasting. All the precautionary and mitigative measures to control ground vibration and to arrest fly rocks are implemented.</p>
(xvi)	<p>Drills shall either be operated with dust extractors or equipped with water injection system.</p>	<p>Wet drilling will be done in the drill holes by pumping water intermittently for dust suppression.</p>
(xvii)	<p>Consent to operate should be obtained from SPCB before starting/ enhanced production from the mine.</p>	<p>Consent to Operate obtained for Bhusar Bauxite Mines vide letter no-PC/RNC/C-68/11-G-3733 DAED 04.10.2013.</p>
(xviii)	<p>A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.</p>	<p>Will be complied.</p>

Sl No	General Condition	Compliance
(i)	<p>No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.</p>	<p>Complied.</p>
(ii)	<p>No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be</p>	<p>Complied.</p>

	made.	
(iii)	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for PM10, SO2 as 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.	The system is already in place. Air quality monitoring report is being submitted regularly at JSPCB and MoEF.
(iv)	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.	Suitable water spraying system is already available for Bagru group of mines. To arrest fugitive dust proper water sprinkling will be carried out on haul roads, loading and unloading and at transfer points.
(v)	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Complied.
(vi)	Industrial wastewater (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 03 or as amended from time to time. Oil and grease trap should be installed before discharge of effluents from workshop.	Complied.
(vii)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.	Complied.
(viii)	Occupational health surveillance programme of the workers should be undertaken periodically to observe any contractions due to exposure to dust	Being carried out.

	and take corrective measures, if needed.	
(ix)	A separate environmental management cell with suitable qualified personnel should be set up under the control of a senior Executive, who will report directly to the Head of the organization.	Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy enclosed.
(x)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purposes. Year-wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar	The fund earmarked for environmental protection measures is being kept in separate account. Year wise expenditure is being reported to the Ministry and its Regional Office located at Bhubaneswar.
(xi)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities should extend full cooperation to the officer(s) of the Regional Office by furnishing requisite data/information/monitoring reports.	Agreed.
(xii)	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 Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.	Complied.
(xiii)	A copy of the clearance letter will be marked to the concerned Panchayat/local NGO, if any, from whom suggestions/representation has been received while processing the proposal.	Complied.
(xiv)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Will be complied.
(xv)	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's/Tehsildar's Office for 30 days.	Complied.

(xvi)	<p>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 http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar.</p>	<p>Complied. Copies of relevant paper cutting are enclosed for information and records.</p>



HINDALCO
HARKHANI MINES & CHARGHATA

P. & A. DEPARTMENT

DATE

NEWS PAPER:

प्रभात खबर

शुक्रवार
21 जन, 2013

HINDALCO



सूचना

यह सूचित किया जाता है कि हिण्डालको इंडस्ट्रीज लिमिटेड के भुसार बॉक्साईट माइन्स (पट्टा क्षेत्र 65.31 हे.) के अंतर्गत भुसार गांव, जिला लोहरदगा, झारखंड को भारत सरकार के वन एवं पर्यावरण मंत्रालय द्वारा पर्यावरण स्वीकृति प्रदान किया गया है. इस स्वीकृति का प्रपत्र झारखंड राज्य प्रदुषण नियंत्रण बोर्ड के पास उपलब्ध है, एवं पर्यावरण मंत्रालय के वेबसाइट <http://envfor.nic.in> में उपलब्ध है.

ह./- उपाध्यक्ष-खान
हिण्डालको इंडस्ट्रीज लिमिटेड
लोहरदगा-झारखंड



JHARKHAND MINES, LOHARDAGA

P & A DEPARTMENT

DATE

NEWS PAPER:

HINDUSTAN TIMES, RANCHI
FRIDAY, JUNE 21, 2013

NOTICE

This is to inform that Bhusar Bauxite Mines (Lease area 65.31 Ha.) project of M/s Hindalco Industries Limited located in village Bhusar, District Lohardaga, Jharkhand has been accorded Environment Clearance by Government of India, Ministry of Environment and Forest. A copy of the clearance letter is available with the Jharkhand State Pollution Control Board and also at website of the Ministry of Environment and Forest at <http://envfor.nic.in>

Vice President - Mines
Hindalco Industries Limited
Lohardaga- Jharkhand

Ref:HIL/P&A/Advertisement, dt. 20.6.13



Test Report

Print Date : 17/06/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-004483.001

JOE No : KG13-004483

Report Control No : KGR0000023584

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 : 12/06/2013
 Marks on Sample : Location : Colony Bagru Lease Area, date : 27.5.2013
 Sampling Site : Bagru/Bhusar/Hisri Old/Hisri New Bauzite Mines(bagruplateau)
 Test Start/End Date : 12/06/2013 - 17/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	41	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	33.56	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	9.57	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		

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

Page 1 of 1

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 17/06/2013

Report No : KG13-004483.002

JOE No : KG13-004483

Report Control No : KGR0000023584

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 : 12/06/2013
 Marks on Sample : Location : Hisri Pit(Core Zone) date : 27.5.2013
 Sampling Site : Bagru/Bhusar/Hisri Old/Hisri New Bauzite Mines(bagruplateau)
 Test Start/End Date : 12/06/2013 - 17/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	89	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	28.21	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	9.75	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	-	-

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

Page 1 of 1

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Test Report

Print Date : 17/06/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-004483.003

JOE No : KG13-004483

Report Control No : KGR0000023584

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 : 12/06/2013
 Marks on Sample : Location : Bhusar Area, date : 28.5.2013
 Sampling Site : Bagru/Bhusar/Hisri Old/Hisri New Bauzite Mines(bagruplateau)
 Test Start/End Date : 12/06/2013 - 17/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	50	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	12.96	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	9.59	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		

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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****End of Report****

Page 1 of 1

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Test Report

Print Date : 17/06/2013

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG13-004483.004

JOE No : KG13-004483

Report Control No : KGR0000023584
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 : 12/06/2013
 Marks on Sample : Location : In & Around Bagru(Kekrang), date : 28.5.2013
 Sampling Site : Bagru/Bhusar/Hisri Old/Hisri New Bauzite Mines(bagruplateau)
 Test Start/End Date : 12/06/2013 - 17/06/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	40	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	10.36	ug/m3	-	60
Oxides of Nitrogen (NOx)	IS:5182 (Part-6):1975 (Reaff.2004)	9.79	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		

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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****End of Report****

Page 1 of 1

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 24/06/2013

Report No : KG13-004480.001-R1

JOE No : KG13-004480

Report Control No : KGR0000024350
Sample Described by Customer as : EFFLUENT

Client Name : Hindalco Industries Limited(Mines Division)
 Client Address : Lohardaga,
 Postal Code : 835203
 State : Jharkhand
 Country : India
 Sample Type : EFFLUENT
 Received : 12/06/2013
 Registered : 12/06/2013
 Marks on Sample : Location : STP Outlet
 Sample Collected on : 09.06.2013
 Sampling Site : Bagru/Bhusar/Hisri New/Hisri Old Bauxite Mines(Bagru plateau)
 Quantity : 4L app
 Test Start/End Date : 12/06/2013 - 18/06/2013

This Report/Certificate cancels and supersedes the Report/Certificate No KG13-004480.001-R00 dated 6/24/2013 (MM/DD/YYYY) issued by SGS India

Analysis	Method	Result	Unit	Requirement/Limit as Per	
				Min	Max
				CPCB DIS. LAND FOR IRREGATION	
pH	APHA 21st. EDN.:2005-4500-B	7.12*		5.5	9.0
Total Suspended Solids	APHA 21st. EDN.:2005-2540 D	4.76	mg/L		100mg/l
BOD @ 27 deg C for 3 days	IS:3025 (Part-44):1993 (Reaff.2003)	7.88	mg/L		30mg/l
Oil & Grease	APHA 21st. EDN.:2005-5520 B	<2.00	mg/L		10mg/l
Aluminium (as Al)	APHA 21st. EDN.:2005-3120 B	<0.05	mg/L		N/A
Calcium (as Ca)	APHA 21st. EDN.:2005-3120 B	17.29	mg/L		N/A
Iron (as Fe)	APHA 21st. EDN.:2005-3120 B	0.47	mg/L		N/A

Remark : * Analyzed at site.

Page 1 of 2

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 24/06/2013

Report No : KG13-004480.001-R1

JOE No : KG13-004480

Report Control No : KGR0000024350

This Report/Certificate cancels and supersedes the Report/Certificate No KG13-004480.001-R00 dated 6/24/2013
(MM/DD/YYYY) issued by SGS India

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

Page 2 of 2

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 24/06/2013

Report No : KG13-004480.002-R1

JOE No : KG13-004480

Sample Described by Customer as : EFFLUENT
Report Control No : KGR0000024350

Client Name : Hindalco Industries Limited(Mines Division)
Client Address : Lohardaga,
Postal Code : 835203
State : Jharkhand
Country : India
Sample Type : EFFLUENT
Received : 12/06/2013
Registered : 12/06/2013
Marks on Sample : Location :Maintenance Garage
Sample Collected on : 09.06.2013
Sampling Site : Bagru/Bhusar/Hisri New/Hisri Old Bauxite Mines(Bagru plateau)
Quantity : 4L app
Test Start/End Date : 12/06/2013 - 18/06/2013

This Report/Certificate cancels and supersedes the Report/Certificate No KG13-004480.002-R00 dated 6/24/2013
(MM/DD/YYYY) Issued by SGS India

Analysis	Method	Result	Unit	Requirement/Limit as Per	
				Min	Max
pH	APHA 21st. EDN.:2005-4500-B	7.36*		5.5	9.0
Total Suspended Solids	APHA 21st. EDN.:2005-2540 D	7.76	mg/L		100mg/l
BOD @ 27 deg C for 3 days	IS.3025 (Part-44):1993 (Reaff.2003)	5.70	mg/L		30mg/l
Oil & Grease	APHA 21st. EDN.:2005-5520 B	2.06	mg/L		10mg/l
Aluminium (as Al)	APHA 21st. EDN.:2005-3120 B	0.10	mg/L		N/A
Calcium (as Ca)	APHA 21st. EDN.:2005-3120 B	5.23	mg/L		N/A
Iron (as Fe)	APHA 21st. EDN.:2005-3120 B	0.68	mg/L		N/A

Remark : * Analyzed at site

Page 1 of 2

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Test Report

Report No : KG13-004480.002-R1

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

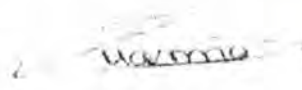
Print Date : 24/06/2013

JOE No : KG13-004480

Report Control No : KGR0000024350

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Per pro SGS India Private Ltd


Satya Manna

Section Incharge - ENVI

Authorized Signatory

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004449.007

JOE No : KG13-004449

Report Control No : KGR0000037668

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 : Bagru-Colony Borewell
 Quantity : 5.5L app
 Sample Collected on : 9.6.2013, time : 2.30 pm
 Test Start/End Date : 12/06/2013 - 20/06/2013

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)	202.00	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	<0.10	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)	246.00	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)	54.54	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 : KG13-004449.007

JOE No : KG13-004449

Report Control No : KGR0000037668

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	15.95	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)	0.11	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 CaCO ₃)	IS:3025 (Part-23):1986 (Reaff.2003)	216.51	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)	<0.02	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 : KG13-004449.007

JOE No : KG13-004449

Report Control No : KGR0000037668

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

Report No. KG13-004503.001

Date :13.06.2013

SGS Form No. G13-0450

Report Control No. KG10000023172

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

SAMPLE DESCRIPTION **MEASUREMENT OF NOISE LEVEL**

COMPANY NAME **M/S. HINDALCO INDUSTRIES LIMITED (MINES DIVISION)**

ADDRESS **MINES DIVISION, LOHARDAGA, JHARKHANDI PIN - 835 302**

SAMPLING SITE **BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MINES (BAGRU PLATI AU)**

PROTOCOL **IS:9089/IS.7194**

DATE OF SAMPLING **27.05.2013 TO 28.05.2012**

TEST START DATE **13.06.2013**

TEST END DATE **13.06.2013**

LOCATION	RESULT		LIMIT IN dB(A) Leq (INDUSTRIAL AREA)	
	Day Time (L _{eq}) in dB(A)	Night time (L _{eq}) in dB(A)	Day Time	Night time
MINE LEASE AREA (NEAR OFFICE)	56	45	75	70

Note: (i) The value is the Leq of One Hundred Seventy readings taken in day time and seventy readings taken in night time.
(ii) Day time shall mean from 6:00 am to 10:00 pm.
(iii) Night time shall mean from 10:00 pm to 6:00 am.

Checked by

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 : KG13-004451.005

JOE No : KG13-004451

Report Control No : KGR0000037718

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 : Bagru Dongipani
 Quantity : 5.5L app
 Sample Collected on : 09.06.2013, time : 9.00pm
 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)	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)	7.0 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	4.54	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)	<5.00	mg/L	250	1000
Total Dissolved Solids	IS:3025 (Part-16):1984 (Reaff.1996)	14.00	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)	1.21	mg/L	75	200

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004451.005

JOE No : KG13-004451

Report Control No : KGR0000037718

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)	<0.01	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)	0.81	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)	8.25	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	0.06	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)	24.50	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 : KG13-004451.005

JOE No : KG13-004451

Report Control No : KGR000037718

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 : KG13-004451.007

JOE No : KG13-004451

Report Control No : KGR0000037720

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: Bagru Churuliya
 Quantity : 5.5L app
 Sample Collected on : 9.6.2013, time :4.00 pm
 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)	7.2 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	4.54	mg/L	200	600
Iron (as Fe)	IS:3025 (Part-2)	0.19	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	0.11	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)	14.80	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)	1.41	mg/L	75	200

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004451.007

JOE No : KG13-004451

Report Control No : KGR0000037720

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)	0.01	mg/L	0.1	0.3
Sulphate (as SO ₄)	IS:3025 (Part-24):1986 (Reaff.1998)	2.28	mg/L	200	400
Nitrate (as NO ₃)	IS:3025 (Part-34):1988 (Reaff.1999)	0.75	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)	7.99	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	0.19	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)	42.50	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 : KG13-004451.007

JOE No : KG13-004451

Report Control No : KGR0000037720

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 : KG13-004451.006

JOE No : KG13-004451

Report Control No : KGR0000037731

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: Bagru Bandhy
Quantity : 5.5L app
Sample Collected on : 09.06.2013, time : 3.30pm
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)	7.1 *		6.5	8.5
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	5.05	mg/L	200	600
Iron (as Fe)	IS 3025 (Part-2)	0.10	mg/L	0.3	No relaxation
Fluoride (as F)	IS:3025 (Part-60):2008	0.17	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)	14.60	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)	1.41	mg/L	75	200

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004451.006

JOE No : KG13-004451

Report Control No : KGR0000037731

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)	<0.01	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)	0.98	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)	7.73	mg/L	200	600
Aluminium (as Al)	IS:3025 (Part-55):2003	0.09	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)	18.50	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 : KG13-004451.006

JOE No : KG13-004451

Report Control No : KGR0000037731

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 08/10/2013

Report No : KG13-007326.001

JOE No : KG13-007326

Report Control No : KGR0000035844
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 : Bagru Colony (Hindalco Office), date : 21.09.2013
Sampling Site : Bagru 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)	12	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	6.82	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
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****End of Report****

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 08/10/2013

Report No : KG13-007326.002

JOE No : KG13-007326

Report Control No : KGR0000035844

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 : Hisri Pit(Core Zone), date : 21.09.2013
 Sampling Site : Bagru 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)	55	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	16.50	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	-	-

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Satya Manna
 Section Incharge - ENVI
 Authorized Signatory

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 08/10/2013

Report No : KG13-007326.003

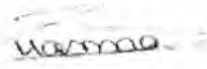
JOE No : KG13-007326

Report Control No : KGR0000035844
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 : Bhusar Area(Opposite at garage), date : 22.09.2013
 Sampling Site : Bagru 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)	41	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	19.20	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


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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 08/10/2013

Report No : KG13-007326.004

JOE No : KG13-007326

Report Control No : KGR0000035844

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 : Kekrang Village, date : 22.09.2013
 Sampling Site : Bagru 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)	20	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	7.56	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		

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Satya Manna

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 30/10/2013

Report No : KG13-007339.001

JOE No : KG13-007339

Report Control No : KGR0000037997

Sample Described by Customer as : EFFLUENT

Client Name : Hindalco Industries Limited(Mines Division)
Client Address : Lohardaga,
Postal Code : 835203
State : Jharkhand
Country : India
Sample Type : EFFLUENT
Received : 30/09/2013
Registered : 30/09/2013
Marks on Sample : Location : STP Outlet
Sample Collected on : 23.9.2013
Sampling Site : Bagru Bauxite Mines(Bagru Plateau)
Quantity : 4L app
Test Start/End Date : 30/09/2013 - 07/10/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per	
				Min	Max
pH	APHA 22nd, EDN.:2012-4500-B	7.64*		5.5	9.0
Total Suspended Solids	APHA 22 nd EDN.:2012-2540 D	5.40	mg/L		200mg/l
BOD @ 27 deg C for 3 days	IS:3025 (Part-44):1993 (Reaff.2003)	2.82	mg/L		100mg/l
Oil & Grease	APHA 22 nd. EDN.:2012-5520 B	<2.00	mg/L		10mg/l
Total Dissolved Solids (TDS)	APHA 22 nd. EDN.:2012-2540 C	287.60	mg/L		N/A
Aluminium (as Al)	APHA 22nd. EDN.:2012-3120 B	<0.05	mg/L		N/A
Calcium (as Ca)	APHA 22nd. EDN.:2012-3120 B	26.99	mg/L		N/A
Iron (as Fe)	APHA 22nd. EDN.:2012-3120 B	0.21	mg/L		N/A

Remark : * Analyzed at site.

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 30/10/2013

Report No : KG13-007339.001

JOE No : KG13-007339

Report Control No : KGR0000037997

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 30/10/2013

Report No : KG13-007339.002

JOE No : KG13-007339

Report Control No : KGR0000037997
Sample Described by Customer as : EFFLUENT

Client Name : Hindalco Industries Limited(Mines Division)
Client Address : Lohardaga,
Postal Code : 835203
State : Jharkhand
Country : India
Sample Type : EFFLUENT
Received : 30/09/2013
Registered : 30/09/2013
Marks on Sample : Location :Maintenance Garage
Sample Collected on : 23.9.2013
Sampling Site : Bagru Bauxite Mines(Bagru Plateau)
Quantity : 4L app
Test Start/End Date : 30/09/2013 - 07/10/2013

Analysis	Method	Result	Unit	Requirement/Limit as Per	
				Min	Max
pH	APHA 22nd. EDN.:2012-4500-B	8.02*		5.5	9.0
Total Suspended Solids	APHA 22 nd EDN.:2012-2540 D	10.00	mg/L		200mg/l
BOD @ 27 deg C for 3 days	IS:3025 (Part-44):1993 (Reaff.2003)	5.38	mg/L		100mg/l
Oil & Grease	APHA 22 nd. EDN.:2012-5520 B	3.20	mg/L		10mg/l
Total Dissolved Solids (TDS)	APHA 22 nd. EDN.:2012-2540 C	107.60	mg/L		N/A
Aluminium (as Al)	APHA 22nd. EDN.:2012-3120 B	0.11	mg/L		N/A
Calcium (as Ca)	APHA 22nd. EDN.:2012-3120 B	12.99	mg/L		N/A
Iron (as Fe)	APHA 22nd. EDN.:2012-3120 B	2.55	mg/L		N/A

Remark : * Analyzed at site.

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Test Report

Report No : KG13-007339.002

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 30/10/2013

JOE No : KG13-007339

Report Control No : KGR0000037997

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

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TEST REPORT

REPORT NO.:KG13-007331.001

Date : 05.10.2013

JOE NO : KG13-007331

Report Control No. KGR0000035607

SAMPLE DRAWN BY SGS INDIA PRIVATE LTD.

Sample described as : FLUE GAS

Name of the Industry : M/s. HINDALCO INDUSTRIES LIMITED

Address : Mines Division, Lohardaga, Jharkhand, PIN – 835 302

Date & time of sampling: 22.09.2013 (10:05 – 10:35 Hrs)

Sampling Site : Bagru/ Bauxite Mines

Location : DG Set (250 KVA)

A General information about stack :

- 1. Stack connected to : DG Set (250 KVA)
- 2. Emission due to : Burning of H.S.D
- 3. Material of construction of Stack : M S
- 4. Shape of Stack : Circular
- 5. Whether stack is provided with permanent platform & ladder : Yes
- 6. Capacity : 250 KVA
- 7. Running Load : 105 KVA

B. Physical characteristics of stack :

- 1. Height of the stack (a) from ground level : 7.0 M
- 2. Diameter of the stack at sampling point : 0.2032 M
- 3. Height of the sampling point from GL : 6.25 M

C. Analysis/Characteristic of Stack :

- 1. Fuel used : H.S.D

2. Fuel Consumption: 30 Lt/Hr.

D. PARAMETERS

PROTOCOL

RESULTS

Limit as per MOEF G.S.R.448(E)

D. PARAMETERS	PROTOCOL	RESULTS	Limit as per MOEF G.S.R.448(E)
1. Temperature of emission (°C)	IS 11255 Part : 3 1985 (Reaff.2008)	337	...
2. Barometric pressure (mm of Hg)	IS 11255 Part : 3 1985 (Reaff.2008)	692	...
3. Velocity of gas (m/sec.)	IS 11255 Part : 3 1985 (Reaff.2008)	9.76	...
4. Quantity of gas flow (Nm ³ /hr.)	IS 11255 Part : 3 1985 (Reaff.2008)	496	...
5. Concentration of Carbon dioxide (% v/v)	IS 11255 Part : 3 1985 (Reaff.2008)	6.2	...
6. Concentration of Sulphur dioxide (mg/Nm ³)	USEPA – 6C	68	...
7. Concentration of Nitrogen dioxide (gm/kw-h)	USEPA – 7E	0.64	9.2
8. Concentration of Oxygen (% v/v)	IS 11255 Part : 3 1985 (Reaff.2008)	13.8	...
9. Concentration of Particulate Matters(gm/kw-h)	IS 11255 Part : 1 1985 (Reaff.2003)	0.10	0.3

E. Pollution control device

Details of pollution control devices attached with the stack : Nil

F. Remarks : Nil

End of Report

Checked by

per pro SGS India Private Ltd.

Dipankar De Sarkar
Manager (Operations)

Dr. Asish Chakraborty
Manager-Laboratory

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झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद

JHARKHAND STATE POLLUTION CONTROL BOARD

| CONSTITUTED UNDER SECTION 4 OF THE WATER (PREVENTION & CONTROL OF POLLUTION) ACT, 1974 |
T.A. DIVISION BUILDING (GROUND FLOOR), HEC COMPLEX, DHURWA, RANCHI-834004.

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

Ref.No. PC/RNC/C-68/116-3733

Dated 04-10-013

CONSENT TO OPERATE

With reference to the application dated 20.06.2013 of G.M. (Operation), M/s Hindalco Industries Ltd; Court Road, P.O.+ Dist Lohardaga, Bhushar Bauxite Mines-65. 31 Ha. for consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and that under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 Environmental Clearance, Ref. No. J-11015/184/2011 - IA -II (M) dated 17.06.2013 and NOC Ref. No. B-4916 dated 29.08.2013, 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 2.80 LTPA of Bauxite ore At- Bagru Hill, P.O + Dist- Lohardaga for the period from the date of issue to 30.09.2014 with the following conditions :

1. That, he(they) shall make any alteration, addition, deletion or modification in the plant without the prior clearance from the Board.
2. That, he(they) shall abide by the obligations provided under section 24, 31 and 33A of the Water (Prevention & Control of Pollution) Act, 1974 and shall extend co-operation to the Board in performing its functions entrusted under section 20, 21, 23, 30 and 32 of the Act.
3. That, he(they) shall comply with the requirements of the Water (Prevention & Control of Pollution) Cess Act, 1977 read with the Water (Prevention & Control of Pollution) Cess Rules, 1978.
4. That, he(they) shall abide by the obligations provided under section 22, 23 and 31A of the Air (Prevention & Control of Pollution) Act, 1981 and shall extend co-operation to the Board in performing its functions entrusted under sections 24, 25 and 26 of the Act.
5. That, he(they) shall abide by the obligations provided under sections 5, 7, 8 and 9 of the Environment (Protection) Act, 1986 and shall extend co-operation in performing the functions entrusted under section 3, 10 and 11 of the Act.
6. That, he(they) shall abide by the applicable provisions of the Environment (Protection) Rules, 1986, the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008; the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989; the Bio-medical Waste (Management & Handling) Rules, 1998; the Municipal Solid Wastes (Management & Handling) Rules, 2000 and the Batteries (Management & Handling) Rules, 2001.
7. That, he(they) shall maintain the quality of discharge and (or) emission and (or) noise level of environmental pollutants in conformity with the standards as laid under Rule 3 of the Environment (Protection) Rules, 1986.

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8. That, he(they) shall monitor his(their) effluent(s), emission(s) and the ambient air, noise level regularly and shall submit the report to the Board in compliance of the condition laid in paragraph 7.
9. That, he(they) shall establish well equipped environmental laboratory with the facilities of system(s) of continuous monitoring of effluent(s), emission(s) ambient water quality(ies), ambient air quality(ies) and ambient noise level(s) and transferring them (monitoring results) to his(their) website(s) and to the e-mail address(es) of the key persons of Jharkhand State Pollution Control Board, Zonal Office, Kolkata and Ministry of Environment & Forests, Regional Office, Bhubneshwar with simultaneous displaying at prominent locations in front of his(their)premises. [*Unit(s) of medium and large scale under 17 categories of polluting industries of category A of EIA Notification, 2006.]
10. That, he(they) shall submit the environmental statement every year by 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 **30.09.2014** or within 120 days from the date of receipt of the order, whichever is earlier.
12. *That, the proponent shall collect and treat the effluent in foolproof latest system and shall recycle treated effluent to the system for reuse and shall ensure the discharge of effluent (if at all necessary) in upstream of the water intake point.*
13. *That, the proponent shall submit the reports of Effluent, Emission, Ambient air quality and Noise level monitored before and after commissioning of the plant, in compliance of the standard prescribed in the Environment (Protection) Rule, 1986.*
14. *That, the proponent shall use D.G. set(s) of standard as prescribed in the Environment (Protection) Rules, 1986 and shall house it (them) in integral acoustic enclosure(s) and shall keep the height of exhaust pipe as per Central Pollution Control Board norms.*
15. *That, the proponent shall dispose of hazardous waste, bio-medical waste, municipal solid wastes and battery waste (whichever is applicable) in the manner as specified under respective Rules.*
16. *That, the proponent shall install fixed water sprinklers to cover all the dusty places in the premises to impart water spraying intermittently and during loading and unloading of raw materials/products and wastes.*
17. *That, the proponent shall submit photographs showing compliance of specific condition Nos. (vii) to (ix) and shall comply with specific condition Nos. (xii) and (x) of Environmental Clearance, Ref.No. J-11015/184/2011 – IA –II (M) dated 17.06.2013 of Ministry of Environment and Forest, Govt. of India, New Delhi.*
18. *That, the proponent shall do socio-economic works in nearby villages for their welfare and shall pay due compensation to the effective people as per laws and government scheme. The shall submit annual report regarding socio-economic activities under taken in the nearby areas.*

19. That, the proponent shall not alter the flow path or course of any river or stream or water body without prior permission from the competent authority.
20. That, the proponent shall make all roads pucca and shall maintain a good house keeping by regular cleaning and wetting of the haul roads and dust prone area.
21. That, the proponent shall not enhance the production figure as mentioned in environmental clearance order.

To, ✓
M/s Hindalco Industries Ltd;
(Bhusar Bauxite Mines-65. 31 Ha)
Court Road, P.O. + Dist- Lohardaga.

Sanjay
4/10
(Sanjay Kumar Sinha)
Member Secretary.

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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:

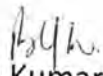
The Environment Management Cell will consist of:

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	
Kujam	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	
Chiro Kukud	3556	1084.146341	Hand Pump	34.30		36.85	