

ADITYA BIRLA



Ref No: HIL/LHD/VP (M)/MoEF/ 413

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 Bagru (75.41ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Lohardaga District of Jharkhand for the period April' 2013 -Sep' 2013.**

Ref: **Environmental Clearance letter no J-11015/585/2007-IA II (M) dated 18th Sept 2011**


Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bagru (75.41ha) Bauxite Mining project of M/s Hindalco Industries Limited**, located in Lohardaga District of Jharkhand for the period **April' 2013 -Sep' 2013.**

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR **M/s Hindalco Industries Limited**,


(Bijesh Kumar Jha)
VP (Mines)

Enclosure: - As Above

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

Date:

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

**Compliance of conditions laid down in Environmental Clearance
BAGRU BAUXITE MINES (75.41 Ha)**

Period :April'13 - Sep'13

MoEF Environment Clearance ref. no. : J – 11015/585/2007 – IA.II (M) dated 04 Feb'2011

Sl No	Conditions	Compliance Status
Specific Conditions		
1	All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.	Complied
2	The environmental clearance is subject to grant of forestry clearance for diversion of 19.56 ha forestland.	This provision has been taken care of during land acquisition with permission of competent authority i.e. concerned Deputy Commissioner (D.C.) and consent of Raiyat (Land Owner) for 20 years period and the land so acquired will be returned as per the norms set by D.C. in land purchased agreement.
3	The mining operation shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment & Forest and Central Ground Water Authority shall be obtained for which a detailed hydro-geological study shall be carried out.	Being complied. Mining is restricted to above ground water table.
4	The project proponent shall ensure that no natural water course and/or water resources shall be obstructed due to any mining operations.	Complied.
5	Top soil should be temporarily stacked with proper slope at earmarked site(s) only with adequate measures and it should not be kept unutilized for a period of more than 3 years. The top soil shall be used for land reclamation and rehabilitation of mined out areas.	Sequential backfilling and reclamation of the mined out area are being exercised. Topsoil is being spread on backfilled area for reclamation. Topsoil is stacked only temporarily if required.
6	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 backfilling should be	Overburden and waste rock are being used for back filling. Data pertaining to backfilling is enclosed as Annexure.

	<p>carried out in such a manner that it is restored to the normal ground level. 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 and its Regional Office, Bhubneshwar on six monthly basis.</p>	<p>Around 1500 sapling have been planted during the FY12-13.</p>
7	<p>The void left unfilled in an area of 1.76 ha shall be converted into water body. The higher benches of excavated void/mining pit shall be traced and plantation done to stabilize the slopes. The slopes of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.</p>	<p>Complied</p>
8	<p>Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, and mineral dumps to arrest flow of silt and sediment directly into Chanpi Nallah, Sukri Nadi and others water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regulary desilted, particularly after monsoon, and maintained properly. Garland drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and flow sediments directly into Chanpi Nallah, Sukri Nadi and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall(based on 50 years date) and maximum discharge in the area adjoin 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 being generated from mining activities. However, to collect and manage rainwater during monsoon rains, Pit sumps are made, part of mined out area is used as settling tank. Settled water is being used for sprinkling of quarry, roads, green belt development, etc.</p>
9	<p>Dimension of the retaining wall at the toe of sub grade dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.</p>	<p>Complied</p>

10	Plantation shall be raise in an area of 50.11 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 least 1500 trees per year shall be planted with a tree density of 1000 trees per hectare.	Being carried out progressively.
11	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the AAQ parameters conform to the norms prescribed by the central Pollution Control Board in this regard.	Being complied with. Regular water sprinkling is being carried out loading and unloading point and all transfer points. Extensive water sprinkling is also being carried out on haul roads and tankers are deployed for these job. AAQ parameters reported within limit.
12	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.	System is already in place.
13	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,its Regional Office,Bhubneshwar; Central Ground Water Authority and Central Ground Water Board.	Complied.
14	The project authority shall obtain necessary prior approval of the competent authority for drawal of requisite quantity of water (surface water and ground water) for the project.	We have water drawl right as per mining lease deed. Water cess is being paid to State Pollution Control Board on monthly basis.
15	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be	Regular maintenance of vehicles are undertaken to minimize vehicular emission. Care is taken on regular basis to arrest spillage/ dust emission. At most care is taken to cover bauxite loaded trucks with Tarpaulin and overloading is avoided.

	overloaded.	
16	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	Being complied with. The mine is adopted control Blasting practice and Blasting is only being carried during specified day time.
17	Drills should either be operated with dust extractors or should be equipped with water injection system	Being complied with.
18	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	The sewage water from domestic uses is collected and treated in Sewage Treatment Plant. No effluent is generated and hence, ETP is not required.
19	Consent to operate should be obtained from SPCB prior to start of production of mine	Complied. Consent to Operate has been obtained from JSPCB and it is valid up to 31.12.13.
20	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project	Since the mining operation is a very old. System is already in place.
21	The critical parameters such as RSPM(Particulate matter with size less than 10micron (i.e., PM ₁₀ , PM _{2.5}) and NO _x in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closed shall be monitored periodically. Further, quantity of discharged water shall also be monitored [TDS,DO, PH and TSS];The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forest, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	Being carried out. Monitoring report attached as annexure.

22	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Final mine Closure Plan has been approved by IBM recently.
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GENERAL CONDITIONS

SI No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Complied with.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	Quantum of bauxite and wastes is within the limit of approved calendar plan.
3	Conservation measures for protection of flora and fauna in the core and buffer zone should be drawn up in consultation with the local forest and wild life department.	Wild life conservation plan is submitted to DFO for approval.
4	Four ambient air quality-monitoring stations 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 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.	AAQ monitoring report attached.
5	Data on ambient air quality (RPM, SPM, SO ₂ , NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	Complied.
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Dedicated water tanker(s) has/have been provided for sprinkling of water on haul roads and are generally being engaged at the places where active mining is in progress to control fugitive dust.

7	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Complied.
8	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Complied.
9	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	System is in place and regularly being carried out.
10	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization	Already formed and informed. Vide annexure
11	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Final mine Closure Plan has been approved by IBM recently. Date of financial closures will intimated.
12	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Fund for environment protection is earmarked. (Vide annexure for fund taken together for the mines division.)
13	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.	Being complied with.

14	<p>The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e mail) to the Ministry of Environment and Forests, its Regional office Bhubaneswar, the respective Zonal office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forest, Bhubaneswar, the respective zonal office of Central Pollution Control Board and the State Pollution Control Board.</p>	Being complied with.
15	<p>A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal corporation, urban local body and the local NGO, if any, from whom and suggestions / representations if any were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.</p>	Complied.
16	<p>State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.</p>	Complied.
17	<p>The environment statement for each financial year ending 31st March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection)Rules,1986 , as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.</p>	Complied.
18	<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</p>	Already done (Documents already submitted).

<p>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.</p>	
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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 17/06/2013

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(bagrupteateau)
 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		

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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		

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Satya Manna

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 : 17/06/2013

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		

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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(bagrupteateau)
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		

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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
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

Report No : KG13-004480.001-R1

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 24/06/2013

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/Bhusari/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	
				CPCB DIS. LAND FOR IRREGATION	
				Min	Max
pH	APHA 21st. EDN.:2005-4500-B	7.36*		5.5	9.0
Total Suspended Soilds	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

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

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

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Page 2 of 2

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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-4) :1991 (Reaff.2003)	54.54	mg/L	75	200

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Test Report

Print Date : 28/10/2013

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG13-004449.007

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

JCL No. - 6G13-04503

Report Control No. - KG1000023172

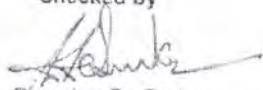
SAMPLE DRAWN BY SGS INDIA PVT. LTD.

SAMPLE DESCRIPTION	MEASUREMENT OF NOISE LEVEL
COMPANY NAME	M/S. HINDALCO INDUSTRIES LIMITED (MINES DIVISION)
ADDRESS	MINES DIVISION, LOHARDAGA, JHARKHAND, PIN - 835 302
SAMPLING SITE	BAGRU/BHUSAR/HISRI OLD/HISRI NEW BAUXITE MINES (BAGRU PLATI AU)
PROTOCOL	IS:9989/IS.7194
DATE OF SAMPLING	27.05 2013 TO 28.05 2012
TEST START DATE	13.06 2013
TEST END DATE	13.06 2013

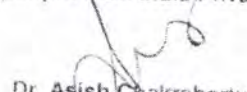
LOCATION	RESULT		LIMIT IN dB(A) Leq (INDUSTRIAL AREA)	
	Day Time (L _{eq}) in dB(A)	Night time (L _{eq}) in dB(A)	Day Time	Night time
MINE LEASE AREA (NEAR OFFICE)	56	45	75	70

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

Checked by


Dipankar De Sarkar
Manager (Operations)

per pro SGS India Private Ltd.


Dr. Asish Chakraborty
Manager-Laboratory

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TEST REPORT

Report No. : KG13-004499.001-002 Date 13.06.2013

Job No. : KG13-004499 Report Control No. : KCR0000023175

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 : BAGRU/BHUSAR/HISRI NEW/ HISRI OLD BAUXITE MINES (BAGRU PLATEAU)
PROTOCOL : IS:9989, IS:2104
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. Contains 2 rows of sampling data.

Note: (i) This value is the Leq of twenty readings taken in each location (Day time).
(ii) Day time shall mean from 6:00 am to 10:00 pm.

End of Report

Checked by

Handwritten signature of Dipankar De Sarkar

Dipankar De Sarkar
Manager (Operations)

per pro SGS India Private Ltd.

Handwritten signature of Dr. Ashish Chakraborty

Dr. Ashish Chakraborty
Manager-Laboratory

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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 : 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 : KGR0000037718

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 28/10/2013

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

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 28/10/2013

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

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 28/10/2013

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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****End of Report****

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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

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	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)	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

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

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 SO4)	IS:3025 (Part-24):1986 (Reaff.1998)	<2.00	mg/L	200	400
Nitrate (as NO3)	IS:3025 (Part-34):1988 (Reaff.1999)	0.98	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)	<0.01	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 CaCO3)	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

Report No : KG13-007326.001

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 08/10/2013

JOE No : KG13-007326

Sample Described by Customer as : AMBIENT AIR QUALITY MONITORING

Report Control No : KGR0000035844

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	-	

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Section Incharge - ENVI

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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

Sample Described by Customer as : Report Control No : KGR0000035844
: 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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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	-	-

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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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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 30/10/2013

Report No : KG13-007339.001

JOE No : KG13-007339

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

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	
				CPCB DIS. LAND FOR IRREGATION	
				Min	Max
pH	APHA 22nd. EDN.:2012-4500-B	7.64*		5.5	9.0
Total Suspended Soilds	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 Soilds (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

Report No : KG13-007339.001

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 30/10/2013

JOE No : KG13-007339

Report Control No : KGR0000037997

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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

Sample Described by Customer as : EFFLUENT

Report Control No : KGR0000037997

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	
				CPCB DIS. LAND FOR IRREGATION	
				Min	Max
pH	APHA 22nd. EDN.:2012-4500-B	8.02*		5.5	9.0
Total Suspended Soilds	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 Soilds (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

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TEST REPORT

REPORT NO.:KG13-007331.001

JOE NO : KG13-007331

Report Control No. KGR0000035607

Date : 05.10.2013

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)
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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JHARKHAND STATE POLLUTION CONTROL BOARD
[CONSTITUTED UNDER SECTION 4 OF THE WATER (PREVENTION & CONTROL OF POLLUTION ACT, 1974)
T.A.DIVISION BUILDING (GROUND FLOOR),HEC COMPEX, DHURWA, RANCHI-834004.
Phone No:-0651- 2400852, 2400851. Fax No:- 2400850.

Ref.No- PC/RNC/77/11-

Date.....

CONSENT TO OPERATE

With reference to the application dated 28.08.2012 of G.M. (Operation), M/s Hindalo Industries Ltd; Court Road, I/C Bagru Bauxite Mines-75.41 Ha, P.O+Dist- Lohardaga 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 85,000 TPA of Bauxite At – Bagru, P.O + Dist- Lohardaga 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 & Transboundry Movement) Rules, 2008; the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989; the Bio-medical Waste (Management & Handling) Rules, 1998; the Municipal Solid Wastes (Management & Handling) Rules, 2000 and the Batteries (Management & Handling) Rules, 2001.
7. That, he(they) shall maintain the quality of discharge and (or) emission and (or) noise level of environmental pollutants in conformity with the standards as laid under Rule 3 of the Environment (Protection) Rules, 1986.
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 04.02.2011 and submit photographs in compliance of special condition No. ~~VII~~ and ~~IX~~ of the same.*

Sd/- VIII and XII

(Sanjay Kumar Sinha)
MEMBER SECRETARY

Memo no. PC/RNC/77/11- 16339

Ranchi, Dated30.1.13

Copy forwarded to:- **G.M. (Operation), M/S Hindalco Industries Ltd; (IC Bagru Bauxite Mines-75.41 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.

Sd/- 30.1.13
(Sanjay Kumar Sinha)
MEMBER SECRETARY

Sd/-

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:

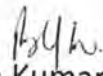
The Environment Management Cell will consist of:

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	
Gurdari	3481	1061.280488	Hand Pump	28.30		24.87	
	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
Kujam	3414	1040.853659	Open Well		33.70		24.80
	3491	1064.329268	Hand Pump	31.50		28.60	
	3450	1051.829268	Hand Pump				21.12
Chiro Kukud	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	