



Ref No: HIL/LHD/VP (M)/MoEF/ 686

Date: 26.05.14

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

Sub: **Compliance Report of EC conditions for Kujam-I Bauxite Mining project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period Oct'13 to March'14.**

Ref: **Environmental Clearance letter no J-11015/240/2005-IA II(M) dated 14th August 2006**


Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Kujam-I (80.87 Ha)** Bauxite Mining project of M/s Hindalco located in Gumla, Jharkhand for the period **Oct'13 to March'14.**

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED


(Bijesh Kumar Jha)
VP (Mines)

Enclosure:- As Above

Compliance of conditions laid down in Environmental Clearance

KUJAM - I BAUXITE MINES (80.87 Ha)

Period: Oct'13 – March'14

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

Sl No	Conditions	Compliance Status
Specific Conditions		
1	All the conditions stipulated by the State Pollution Control Board in their NOC should be effectively implemented.	Implementation of the stipulated conditions are fulfilled.
2	The mining operations shall not intersect groundwater table. Prior approval of the MoEF and CGWA shall be obtained for mining below water table.	The mining operation is confined within shallow depth (20m max) and as per the study conducted by authorized agency [Center for Ground Water Studies, Kolkata (WB)] during Nov.-Dec '06; the ground water level is in the range of 80-100m from ground level.
3	The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.	This provision has been taken care of during land acquisition with permission of competent authority i.e. concerned Deputy Commissioner (D.C.) and consent of Raiyat (Land Owner) for 20 years period and will return the land so acquired as per the norms set by D.C. in land purchased agreement. (Documents already submitted)
4	Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Top soil is being stacked separately for reclamation and rehabilitation of mined out areas with progress of Mining.
5	The waste generated in the initial period shall be dumped temporarily and backfilled in the mined out area. There shall be no permanent external OB dump in the project area. Concurrent backfilling should start from the fifth year onwards. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.	Initial dumping is being done, with progress of mining the mined out voids will be backfilled using the dumped material. Concurrent backfilling will be done from fifth year of mining. Afforestation will be done progressively over reclaimed area for rehabilitation.

6	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>Catch drains, siltation ponds, garland drains are being constructed in commensuration with the progress of mining activities.</p>
7	<p>Plantation shall be raised in an area of 43.5 ha including a green belt of adequate width by planting the native species around the ML area, roads, etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.</p>	<p>Plantation will be carried out as per the stipulated condition with progress of mining. This year around 500 saplings has been planted.</p>
8	<p>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.</p>	<p>A study has been conducted by Centre for Ground Water Studies, Kolkata, a reputed agency in the field. The same is being studied by us and will be sent to Regional Director, Central Ground Water Board along with our observation for his opinion prior to implementation of scheme.</p>
9	<p>Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.</p>	<p>Complied, A copy for ground water level monitoring report is enclosed.</p>
10	<p>Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.</p>	<p>Agreed. Water cess is being paid on regular basis to JSPCB.</p>
11	<p>The project proponent shall monitor the spring discharge on long term basis (at least one major spring) both in terms of quantity and quality of</p>	<p>Complied. Water quality report enclosed.</p>

	water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar.	
12	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Regular maintenance of vehicles are undertaken to minimize vehicular emission. All measures are being taken to control vehicular emission. The vehicles are covered with a tarpaulin.
13	Drills should either be operated with dust extractors or should be equipped with water injection system	Wet drilling is done in the drill holes intermittently for dust suppression by pumping water.
14	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented	Blasting at Mines is done at fixed blasting period i.e. 12.00 Noon to 1.00 PM on working days. Mobile mining activities are not being practiced during blasting. All the precautionary and mitigative measures to control ground vibration and to arrest fly rocks is being exercised.
15	Consent to operate should be obtained from SPCB prior to start of production of mine.	Consent to operate obtained from JSPCB prior to start of production from Mines.
16	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	Considering the practical requirement, 2-3 nos soak pits have been planned to construct during the establishment of colony. Presently there is no workshop hence no ETP is required.
17	Land oustees and land loser/affected people should be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of project Affected Families (NPRR), 2003	All land acquisition activities is done as per CNT Act and with permission of competent authority i.e. concerned Deputy Commissioner (D.C.) and consent of Raiyat (Land Owner) for 20 years period. There is no displacement involved & hence R&R is not applicable.
18	The higher benches of the excavated void to be converted into water reservoir shall be terraced and afforested to stabilize the slopes. Peripheral fencing shall be done along the excavated area.	Planned to implement with progress of mining.
19	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	Final mine Closure Plan will be submitted at appropriate time. Presently we are having approved progressive mine Closure Plan.

GENERAL CONDITIONS

Sl No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Being adhered to.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made	Excavation of Over Burden and Bauxite is being done as per the approved calendar plan.
3	Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife departments.	Suitable conservation measures implemented for protection of flora & fauna.
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.	Monitoring Reports is enclosed as Annexure.
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.	Monitoring Reports for reporting period is enclosed in Annexure.
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Water spraying arrangement on haul roads, loading and unloading and at transfer points is being carried out on regular basis.
7	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	PPE's provided to workers at noise prone areas
8	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated	Agreed, will be taken care of with progress of mining.

	19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	
9	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	PPE's provided to workers at dusty areas Periodic health checks up/ occupational health checkup are in practice for the workers at Mine.
10	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization	Separate Environmental Management Cell (EMC) already formed with qualified personals and informed. (enclosed as annexure)
11	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Final mine closure plan will be submitted at appropriate time. Presently we are having approved progressive mine closure plan. Date of financial closure is 31 st March.
12	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.	Separate budget has been prepared for the purpose. Copy enclosed.
13	The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Vide Point no. 11 above.
14	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Agreed.
15	A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom and suggestion / representation has been received while processing the proposal.	Complied

16	State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	Displayed.
17	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. (Documents already submitted)



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

The composite cost during the year 2013-14 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of 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 New (14.55 Ha), Chiro kukud, Orsa pat(196.36 Ha), Bhusar (65.31 Ha)& Bimarla Bauxite Mines (134.52 Ha).

Sl No	Description	Budget (in Lakh Rupees) FY 2013-2014	Actual (in Lakh Rupees) FY 2013-2014 from April'13 to Sep'13	Actual (in Lakh Rupees) FY 2013-2014 from Oct'13 to March'14
1	Pollution Control & Environment monitoring	10.00	6.44	-
2	Reclamation/ Back filing & Rehabilitation	**	153.60	71.50
3	Green belt & Plantation	40.00	30.75	9.50
4	Rural Development	70.00	67.72	85.35

**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 MAR-14

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	25.95	19.20	253610.00	371290
Gurdari Bauxite Mines	584.19	33.20	25.60	313975.00	487773
Jalim & Sanai	12.14	4.00	2.00	49445.00	30124
Serangdag	140.06	7.96	3.48	99795.00	98371
Pakhar Buxite Mines	115.13	3.71	5.09	296950.00	449483
Pakhar Buxite Mines	8.09	1.70	0.80	68400.00	11380
Kujam-I	80.87	14.12	7.52	149255.00	99902
Kujam-II	157.38	5.41	3.60	149790.00	82386
Amtipani	190.95	16.46	16.03	149665.00	419976
Chiro-Kukud	152.57	2.90	6.18	52929.00	62222
Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0
Hisri New	14.55	1.17	0.00	93813.00	6699
Bagru	75.41	0.94	0.24	56804.00	31935
Bhusar	65.31	2.26	8.32	203532.00	150616
Minerals & Minerals Limited					
Pakhar Buxite Mines	109.507	7.61	6.45	234500.00	210702
Pakhar Buxite Mines	15.58	1.45	1.85	57065.00	174812

Monitored water level

Location (Mines)	Elevation (feet)	Elevation (Mtr)	Well type	Monsoon 2013		Post Monsoon 2013		Winter		Pre Monsoon		
				Inside ML	Outside ML	Inside ML	Outside ML	Inside ML	Outside ML	Inside ML	Outside ML	
Bagru	2970	905	Open Well		21.70		24.10			27.32		29.23
	2985	910	Open Well		24.20		24.50			26.89		27.19
	3001	915	Open Well		29.30		28.40			30.14		31.26
	2963	903	Open Well		22.90		33.10			35.21		35.89
	2983	909	Open Well		17.60		28.70			29.62		30.18
Pakhar	3279	1000	Open Well		24.90		22.60			24.51		25.93
	3552	1083	Hand Pump	35.40		31.60		34.34			35.49	
Sherengdag	3370	1027	Open Well		25.80		28.30			30.53		31.42
	3587	1094	Hand Pump	41.80		39.58		42.13			42.56	
	3546	1081	Hand Pump	39.60		31.26		41.37			41.31	
	3459	1055	Hand Pump	33.10		27.50		35.31			35.35	
	3495	1066	Hand Pump	27.70		26.13		29.12			30.25	
Gurdari	3428	1045	Hand Pump	29.34		27.85		29.64			30.41	
	3481	1061	Hand Pump	28.30		24.87		25.42			26.79	
	3472	1059	Hand Pump	38.10		36.63		35.21			35.98	
	3527	1075	Hand Pump	28.20		26.83		28.49			29.53	
	3526	1075	Hand Pump	28.30		29.32		30.29			30.05	
Kujam	3412	1040	Open Well		33.90		21.80			35.21		36.78
	3414	1041	Open Well		33.70		24.80			36.54		39.52
	3491	1064	Hand Pump	31.50		28.60		35.91		42.12		
Chiro Kukud	3450	1052	Hand Pump				21.12			24.13		23.54
	3765	1148	Hand Pump	33.40		28.35		34.12			37.26	
	3776	1151	Hand Pump	37.60		31.84		36.67			36.21	
	3556	1084	Hand Pump	34.30		36.85		35.69			39.19	

B. Anand



Test Report

Print Date : 30/01/2014

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Report No : KG14-000220.001

JOE No : KG14-000220

Report Control No : KGR0000046005

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 : 09/01/2014
Registered : 09/01/2014
Marks on Sample : Location : Gurdari pit haralangka quarry (Netarhat plateau), sampling dt. 26.12.2013
Test Start/End Date : 09/01/2014 - 14/01/2014

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	44.27	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	17.87	ug/m3	-	60
Nitrogen Dioxide (NO2)	IS:5182 (Part-6):1975 (Reaff.2004)	<5.00	ug/m3	-	60
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide (CO)	EPA 600/P-99/001F	<0.10	PPM		

Analyzed at site.

Page 1 of 2

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

Report No : KG14-000220.001

JOE No : KG14-000220

Report Control No : KGR0000046005

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

Report No : KG14-000220.002

JOE No : KG14-000220

Report Control No : KGR0000046005
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 : 09/01/2014
Registered : 09/01/2014
Marks on Sample : Location : Amtipani workshop (Netarhat plateau), sampling date : 26.12.2013
Test Start/End Date : 09/01/2014 - 14/01/2014

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	70.86	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	19.50	ug/m3	-	60
Nitrogen Dioxide (NO2)	IS:5182 (Part-6):1975 (Reaff.2004)	10.41	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	5.03	ug/m3	-	80
Carbon Monoxide (CO)	EPA 600/P-99/001F	<0.10	PPM		

Analyzed at site.

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Test Report

Report No : KG14-000220 002

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

JOE No : KG14-000220

Report Control No : KGR0000046005

Per pro SGS India Private Ltd

Satya Manna

Section Incharge -ENVI

Authorized Signatory

****End of Report****

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

Report No : KG14-000220.003

JOE No : KG14-000220

Report Control No : KGR0000046005
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 : 09/01/2014
Registered : 09/01/2014
Marks on Sample : Location : Kujam-II weight bridge(Netarhat plateau), Sampling date : 28.12.2013
Test Start/End Date : 09/01/2014 - 14/01/2014

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	32.01	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	27.83	ug/m3	-	60
Nitrogen Dioxide (NO2)	IS:5182 (Part-6):1975 (Reaff.2004)	6.36	ug/m3	-	80
Sulphur Dioxide (SO2)	IS:5182 (Part-2):2001 (Reaff.2006)	<5.00	ug/m3	-	80
Carbon Monoxide (CO)	EPA 600/P-99/001F	<0.10	PPM		

Analyzed at site.

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

Report No : KG14-000220.003

JOE No : KG14-000220

Report Control No : KGR0000046005

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

Report No : KG14-000220.004

JOE No : KG14-000220

Report Control No : KGR0000046005

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 : 09/01/2014
Registered : 09/01/2014
Marks on Sample : Location : Kujam-I Chatam Village (Netarhat plateau), Sampling dt. 28.12.2013
Test Start/End Date : 09/01/2014 - 14/01/2014

Analysis	Method	Result	Unit	Requirement/Limit as Per NAAQS	
				Min	Max
Particulate Matter (PM10)	IS:5182 (PART 23)	21.89	ug/m3	-	100
Particulate Matter (PM2.5)	USEPA CFR(40) Appendix-L	7.21	ug/m3	-	60
Nitrogen Dioxide (NO2)	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 (CO)	EPA 600/P-99/001F	<0.10	PPM		

Analyzed at site.

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

Report No : KG14-000220.004

JOE No : KG14-000220

Report Control No : KGR0000046005

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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TEST REPORT

Report No. : KG14-000256.001

JOE No. : KG13-000256

Report Control No. : KGR0000044241

Date :11.01.2014

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	GURDARI MINES (NATARHAT PLATEAU)
PROTOCOL	IS:9989/IS:7194
DATE OF SAMPLING	27.12.2013 TO 28.12.2013
TEST START DATE	10.01.2014
TEST END DATE	11.01.2014

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
NEAR HINDALCO OFFICE	54	43	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

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

Checked by

Dipankar De Sarkar
Manager (Operations)

per pro SGS India Private Ltd.

Dr. Asish Chakraborty
Manager-Laboratory

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Test Report

SAMPLE DRAWN BY SGS INDIA PVT. LTD.

Print Date : 30/01/2014

Report No : KG14-000235.001

JOE No : KG14-000235

Sample Described by Customer as : FUGITIVE AIR
Report Control No : KGR0000045997

Client Name : Hindalco Industries Limited(Mines Division)
Client Address : Lohardaga,
Postal Code : 835203
State : Jharkhand
Country : India
Sample Type : FUGITIVE AIR
Received : 10/01/2014
Registered : 10/01/2014
Marks on Sample : Location: Haralanga Quary Gurdari Mines(Netarhat), date :28.12.2013
Test Start/End Date : 10/01/2014 - 15/01/2014

Analysis	Method	Result	Unit	Requirement/Limit as Per
				FACTORY ACT. 1948 & BIHAR/JHARKAND FACTORY Min RULE-1950 Max
Suspended Particulate Matter (SPM)	IS 5182 (Part-23):2006	269.94	ug/m3	10000

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Satya Manna

Section Incharge - ENVI

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 20/01/2014

Report No : KG14-000161.001

JOE No : KG14-000161

Report Control No : KGR0000045100

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 : 08/01/2014
Registered : 08/01/2014
Marks on Sample : Location:Hand Pump Office Colony, Gurdari mines
- : Netarhat Plateau
Quantity : 5.5L app
Sample Collected on : 29.12.2013
Sampling Method : APHA 1060B/9060A
Test Start/End Date : 08/01/2014 - 20/01/2014

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Colour	IS:3025 (Part-4):1983 (Reaff.2006)	10.0	Hz	5	15
Odour	IS:3025 (Part-5):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
Taste	IS:3025 (Part-8):1983 (Reaff.2006)	Agreeable		Agreeable	Agreeable
pH	IS:3025 (Part-11):1983 (Reaff.2006)	7.74		6.5	8.5
<i>Analyzed at site.</i>					
Total Hardness (as CaCO ₃)	IS:3025 (Part-21):1983 (Reaff.2006)	186.00	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	0.74	mg/L	1.0	1.5
Residual Free Chlorine	IS:3025 (Part-26):1986 (Reaff.2003)	<0.10	mg/L	0.2	1.0

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Test Report

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 20/01/2014

Report No : KG14-000161.001

JOE No : KG14-000161

Report Control No : KGR0000045100

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
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)	227.80	mg/L	500	2000
E.coli	IS:1622:1981(Reaff.2003)	Absent	per 100ml		
Coliform bacteria	IS:1622-1981 (Reaffirmation 2003)	Absent	per 100ml		
Calcium (as Ca)	IS:3025 (Part-40):1991 (Reaff.2003)	37.20	mg/L	75	200
Magnesium (as Mg)	IS:3025 (Part-46):1994 (Reaff.1999)	22.60	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)	1.00	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

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SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Print Date : 20/01/2014

Report No : KG14-000161.001

JOE No : KG14-000161

Report Control No : KGR0000045100

Analysis	Method	Result	Unit	Requirement/Limit As per IS:10500:2012	
				Acceptable	Permissible
Total Alkalinity (as CaCO ₃)	IS:3025 (Part-23):1986 (Reaff.2003)	157.01	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)	2.62	NTU	1	5

Per pro SGS India Private Ltd

Aniruddha Das

Section Incharge-Microbiology

Authorized Signatory

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

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Test Report

Print Date : 29/01/2014

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG14-000137.001

JOE No : KG14-000137

Sample Described by Customer as : SOIL Report Control No : KGR0000045903

Client Name : Hindalco Industries Limited(Mines Division)
Client Address : Lohardaga,
Postal Code : 835203
State : Jharkhand
Country : India
Sample Type : SOIL
Received : 08/01/2014
Registered : 08/01/2014
Marks on Sample : Location:Reclaim Area, Haralangra Quarry
- : Gurdari Mines(Netarhat Plateau)
Sample Collected on : 28.12.2013
Quantity : 2.5Kg app
Test Start/End Date : 08/01/2014 - 22/01/2014

Analysis	Method	Result	Unit
Conductivity (1:5) Soil Suspension.	F.A.U.N (2007)	6.8	µs/cm
pH (1:2) Soil Suspension	F.A.U.N (2007)	6.08	--
Porosity	F.A.U.N (2007)	59.02	%
Bulk Density	By Bulk Density Apparatus	1.05	gram/ml
Phosphorus (as P)	F.A.U.N (2007)	<20.000	mg/kg
Texture	F.A.U.N (2007)	Sandy clay	
Clay	F.A.U.N (2007)	35.8	%
Sand	F.A.U.N (2007)	46.2	%
Silt	F.A.U.N (2007)	18.0	%
Available Chloride (as Cl)	Soil & Agriculture Organization (U.N-2007)	<20.00	mg/kg
Available Nitrogen	Food & Agriculture Organization (U.N-2007)	258.02	mg/kg

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Member of the SGS Group (SGS SA)



Test Report

Print Date : 29/01/2014

SAMPLE COLLECTED BY SGS INDIA PVT. LTD.

Report No : KG14-000137.001

JOE No : KG14-000137

Analysis	Method	Result	Unit
Available Potassium (as K)	Soil & Water Book By P.K. Gupta	1711.49	mg/kg
Available Magnesium (as Mg)	Soil & Water Book By P.K. Gupta	2374.48	mg/kg
Lead (as Pb)	USEPA 3052	15.02	mg/kg
Chromium (as Cr)	USEPA 3052	57.12	mg/kg
Mercury (as Hg)	USEPA 3052	<1.00	mg/kg
Total Organic Matter	Black & Walkely Wet Digestion Method	0.55	%

Per pro SGS India Private Ltd

Satya Manna

Section Incharge - ENVI

Authorized Signatory

****End of Report****

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TEST REPORT

Report No. : KG17-000182.001- 005

Date : 10.01.2014

JOE No. : KG14-000182

Report Control No:KGR0000044171

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 : GURDARI MINE (NETERHAT PLATEAU)
PROTOCOL : GENSOP/CALLAB-116
TEST START DATE : 09.01.2014
TEST END DATE : 10.01.2014

SL NO.	SAMPLING LOCATION	DATE & TIME OF SAMPLING	DAY TIME NOISE LEVEL dB (A) Leq	LIMIT IN dB(A) Leq DAY TIME (INDUSTRIAL AREA)
1.	POCKLE (TATA HITACHI EX-350 LCHM)	28.12.2013 (12:50 Hrs)	77	75
2.	DUMPER-6 (BR-1G-8844)	28.12.2013 (13:05 Hrs)	74	75
3.	WAGON DRILL (ATLAS COPCO)	28.12.2013 (13:17 Hrs)	82	75
4.	PAY LOADER (TWL 3036)	28.12.2013 (13:24 Hrs)	79	75
5.	COMPRESSOR (INGERSOLL POND P-400)	28.12.2013 (13:35 Hrs)	81	75

Note: (i) The 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

per pro SGS India Private Ltd.

Dipankar De Sarkar
Manager (Operations)

Dr. Asish Chakraborty
Manager-Laboratory

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