ADITYA BIRLA
HINDALCO

Ref No: HIL/LHD/JP (M)/MoEF/ 947 Date: 25.11.14

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 April'14 to Sep'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 **April'14 to Sep'14.**

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

(Bijesh Kumar Jha)
Joint President (Mines)

Enclosure:- As Above

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

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

Website www.hindalco.com

Compliance of conditions laid down in Environmental Clearance
KUJAM - I BAUXITE MINES (80.87 Ha)
Period: April'14 – Sep'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	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.	Catch drains, siltation ponds, garland drains are being constructed in commensuration with the progress of mining activities.
7	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.	Plantation will be carried out as per the stipulated condition with progress of mining. During 2014-15 around 500 saplings has been planted.
8	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	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.
9	Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.	Complied, A copy for ground water level monitoring report is enclosed.
10	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Agreed. Water cess is being paid on regular basis to JSPCB.
11	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	Complied. Water quality report enclosed.

	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, SO2, NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Monitoring Reports is enclosed as **Annexure.**
5	Data on ambient air quality (RPM, SPM, SO2, NOx) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	Monitoring 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 31st 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 **httD:/ /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)**

ADITYA BIRLA

HINDALCO

Date: 10.11.14

OFFICE ORDER

In connection with the earlier office order dated 30.10.2013 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. Ajay Kumar Pandey, Manager (Bagru Mines)
3. A Anbarasu, Mines Manager (Serengdag Mines)
4. S P Jha, Mines Manager (Pakhar Mines)
5. Kiran Sankar Singh, Mines Manager (Gurdari)
6. Vidya Sagar Singh, Mines Manager (Kujam)
7. Amar Bharati, Mines Manager (Amtipani)
8. Rajesh Ambastha, Mines Manager (Chiro Kukud & Orsa)
9. Biplab Mukherjee (Asst Manager- Geology)

By order

Bijesh Kumar Jha
Joint President (Mines)

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

HINDALCO INDUSTRIES LIMITED
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ADITYA BIRLA

HINDALCO

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2014-15

The composite cost during the year 2014-15 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 2014-15	Actual (in Lakh Rupees) FY 2014-2015 (from April'14 to Sep'14)
1	Pollution Control & Environment monitoring	**5.50**	**6.00**
2	Reclamation/ Back filing & Rehabilitation	**42.50**	**36.00**
3	Green belt & Plantation	**60.03**	**54.46**
4	Rural Development	**85.29**	**111.37**

**Part of OB removed cost.

Convener
Environment Management Cell
Hindalco Industries Limited

HINDALCO INDUSTRIES LIMITED
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Court Road, Lohardaga-835302
Distt. Lohardaga (Jharkhand)

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PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-14 TO SEP-14

SL	Name of Mines	Mining lease area (Ha)	Mined Out area (in Acres)	Backfilled area (in Acres)	Production (in MT)	Overburden Removal (in Cub.M.)
1	Shrengdag Bauxite Mines	155.81	7.80	4.80	105050	205180
2	Gurdari Bauxite Mines	584.19	22.10	11.80	168585	4024704
3	Jalim & Sanai	12.14	0.70	0.30	5311	12450
4	Serangdag	140.07	2.00	0.50	31650	30600
5	Pakhar Buxite Mines	115.13	3.69	1.50	137290	206568
6	Pakhar Buxite Mines	8.09	0.00	0.00	0.00	0.00
7	Pakhar Buxite Mines	38.95	0.00	0.00	0.00	0.00
8	Kujam-I	80.87	4.15	3.46	37960	51491
9	Kujam-II	157.38	13.84	12.75	104325	121798
10	Amtipani	190.95	4.03	3.26	93330	52493
11	Chiro-Kukud	152.57	3.95	6.42	17584	18797
12	Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0.00
13	Hisri New	14.55	1.29	0.65	54529	9471
14	Bagru	75.41	0.00	0.00	0.00	0.00
15	Bhusar	65.31	0.94	1.50	82032	82626
	Minerals & Minerals Limited					
16	Pakhar Buxite Mines	109.507	4.21	3.51	183605	162580
17	Pakhar Buxite Mines	15.58	0.30	0.20	31175	98966
18	Bimarla Bauxite Mines	134.526	0.00	0.00	0.00	0.00

Monitored water level

Fig in meter

Location (Mines)	Elevation (Mtr)	Well type	Monsoon 2014		Post Monsoon 2014	
			Inside ML	Outside ML	Inside ML	Outside ML
Bagru	905	Open Well		21.72		24.15
	910	Open Well		24.30		24.55
	915	Open Well		29.40		28.44
	903	Open Well		22.85		33.12
	909	Open Well		17.55		28.75
	1000	Open Well		24.90		22.66
Pakhar	1083	Hand Pump	35.35		31.65	
Sherengdag	1027	Open Well		25.85		28.35
	1094	Hand Pump	41.75		39.54	
	1081	Hand Pump	39.65		31.30	
	1055	Hand Pump	33.05		27.55	
	1066	Hand Pump	27.75		26.25	
Gurdari	1045	Hand Pump	29.30		27.84	
	1061	Hand Pump	28.35		24.90	
	1059	Hand Pump	38.15		36.63	
	1075	Hand Pump	28.22		26.88	
	1075	Hand Pump	28.36		29.30	
Kujam	1040	Open Well		33.95		21.85
	1041	Open Well		33.65		24.82
	1064	Hand Pump	31.58		28.65	
	1052	Hand Pump				21.12
Chiro Kukud	1148	Hand Pump	33.45		28.40	
	1151	Hand Pump	37.60		31.80	
	1084	Hand Pump	34.35		36.86	

Eco Ventures Pvt. Ltd.

Regd. Office: 2/37, Sarvapriya Vihar, Near IIT Gate, New Delhi-110016
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E: ecoventures.mumbai@gmail.com /ecoventures@eco-ventures.in

Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
District – Ranchi 834009

NETARHAT PLATEAU- ENVIRONMENTAL MONITORING REPORT

SEPTEMBER 2014

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Engg. Pvt. Ltd.

Authorised Signatory

Mahabal Enviro Eng. Pvt. Ltd. Ranchi

Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:
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E-mail:mahabalranchi@gmail.com

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: AMBIENT AIR QUALITY MONITORING
Received:25.09.2014
Registered: 25.09.2014
Marks on Sample: Location: Netarhat Plateau- Gurdari Pit Hara Langra Quari
Sample collected on: 25.09.2014
Test Start/End Date: 25.09.2014/27.09.2014

LOCATION / IDENTIFICATION: Netarhat Plateau- Gurdari Pit Hara Langra Quari

PARAMETERS		UNIT	LIMIT	METHOD	27/09/2014
Sulphur Dioxide	SO_2	µg/m³	80	IS:5182 (Part-2):2001 (Reaff:2006)	30.2
Nitrogen Dioxide	NO_2	µg/m³	80	IS:5182(Part-6):1975 (Reaff:2004)	45.2
Particulate Matter (size less than 10 µm)	PM_{10}	µg/m³	100	IS:5182 (Part 23)	90.1
Particulate Matter (size less than 2.5 µm)	$PM_{2.5}$	µg/m³	60	USEPA CFR(40) Appendix-L	42.5
Carbon Monoxide	CO	mg/m³	2	EPA 600/P-99/001F	0.35

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Eng. Pvt. Ltd.
Authorised Signatory

Mahabal Enviro Eng. Pvt. Ltd. Ranchi

Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:
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Mobile No: +91 9431.102.102 / +91 9955.358.262,
E-mail:mahabalranchi@gmail.com

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: AMBIENT AIR QUALITY MONITORING
Received:25.09.2014
Registered: 25.09.2014
Marks on Sample: Location: Netarhat Plateau- Amtipani Workshop
Sample collected on: 25.09.2014
Test Start/End Date: 25.09.2014/27.09.2014

LOCATION / IDENTIFICATION: Netarhat Plateau- Amtipani Workshop

PARAMETERS		UNIT	LIMIT	METHOD	27/09/2014
Sulphur Dioxide	SO_2	µg/m³	80	IS:5182 (Part-2):2001 (Reaff:2006)	65.2
Nitrogen Dioxide	NO_2	µg/m³	80	IS:5182(Part-6):1975 (Reaff:2004)	60.1
Particulate Matter (size less than 10 µm)	PM_{10}	µg/m³	100	IS:5182 (Part 23)	83.2
Particulate Matter (size less than 2.5 µm)	$PM_{2.5}$	µg/m³	60	USEPA CFR(40) Appendix-L	49.1
Carbon Monoxide	CO	mg/m³	2	EPA 600/P-99/001F	0.43

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Engg. Pvt. Ltd.
Authorised Signatory

Mahabal Enviro Engg. Pvt. Ltd. Ranchi

Mahabal Enviro Engineers Pvt. Ltd.

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E-mail:mahabalranchi@gmail.com

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: AMBIENT AIR QUALITY MONITORING
Received: 25.09.2014
Registered: 25.09.2014
Marks on Sample: Location: Netarhat Plateau- Kujam II Weight Bridge
Sample collected on: 25.09.2014
Test Start/End Date: 25.09.2014/27.09.2014

LOCATION / IDENTIFICATION: Netarhat Plateau- Kujam II Weight Bridge

PARAMETERS		UNIT	LIMIT	METHOD	27/09/2014
Sulphur Dioxide	SO_2	µg/m³	80	IS:5182 (Part-2):2001 (Reaff:2006)	22.5
Nitrogen Dioxide	NO_2	µg/m³	80	IS:5182(Part-6):1975 (Reaff:2004)	30.5
Particulate Matter (size less than 10 µm)	PM_{10}	µg/m³	100	IS:5182 (Part 23)	78.5
Particulate Matter (size less than 2.5 µm)	$PM_{2.5}$	µg/m³	60	USEPA CFR(40) Appendix-L	29.8
Carbon Monoxide	CO	mg/m³	2	EPA 600/P-99/001F	0.6

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Eng. Pvt. Ltd.

Authorised Signatory

Mahabal Enviro Eng. Pvt. Ltd. Ranchi

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Hindalco Industries:Environmental Monitoring report **September 2014**

Report no: SEPT002/2014-15 Date: 1st October,2014

Sample described by customer: AMBIENT AIR QUALITY MONITORING

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: AMBIENT AIR QUALITY MONITORING
Received: 25.09.2014
Registered: 25.09.2014
Marks on Sample: Location: Netarhat Plateau- Kujam I
Sample collected on: 25.09.2014
Test Start/End Date: 25.09.2014/27.09.2014

LOCATION / IDENTIFICATION: Netarhat Plateau- Kujam I

PARAMETERS		UNIT	LIMIT	METHOD	27/09/2014
Sulphur Dioxide	SO_2	µg/m³	80	IS:5182 (Part-2):2001 (Reaff:2006)	25.2
Nitrogen Dioxide	NO_2	µg/m³	80	IS:5182(Part-6):1975 (Reaff:2004)	36.4
Particulate Matter (size less than 10 µm)	PM_{10}	µg/m³	100	IS:5182 (Part 23)	85.2
Particulate Matter (size less than 2.5 µm)	$PM_{2.5}$	µg/m³	60	USEPA CFR(40) Appendix-L	45.8
Carbon Monoxide	CO	mg/m³	2	EPA 600/P-99/001F	0.50

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Eng. Pvt. Ltd.
Authorised Signatory

Mahabal Enviro Eng. Pvt. Ltd. Ranchi

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(600 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room. Near J B Sawant Bus Stop)
Phone: 2582 0658/ 3139/ 1663/ 3154 Fax: 91-22-25823543 thane@mahabal.com

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E-mail:mahabalranchi@gmail.com

Hindalco Industries:Environmental Monitoring report **September 2014**

Date: 1st October,2014

Report no: SEPT002/2014-15

Sample Description: Measurement of Noise

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample Description: Measurement of Noise Level.
Sampling Method: Instrumental, Using Sound level Meter
Sampling Done by: Mahabal Enviro.
Test Start: 22.09.2014
End Date: 23.09.2014

Location / Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Month			Average of 24 continuous hours in Sep- 14		Average of 24 continuous hours in Sep- 14	
Netarhat Plateau Near Gurdari Pit	dB(A) L_{eq}	75	61.0	70	63.9	23/09/2014

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Eng. Pvt. Ltd.

Authorised Signatory

Mahabal Enviro Eng. Pvt. Ltd. Ranchi

Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(600 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room. Near J B Sawant Bus Stop)
Phone: 2582 0658/ 3139/ 1663/ 3154 Fax: 91-22-25823543 thane@mahabal.com

Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:
At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,
Mobile No: +91 9431.102.102 / +91 9955.358.262,
E-mail:mahabalranchi@gmail.com

Hindalco Industries:Environmental Monitoring report **September 2014**

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample described by customer: SOIL

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: SOIL
Received:23.09.2014
Registered: 23.09.2014
Marks on Sample: Location: Netarhat Plateau Near Gurdari Pit
Sample collected on: 17.09.2014
Quantity: 2 kgs
Test Start/End Date: 23.09.2014/24.09.2014
Sample collected by: Mahabal Enviro Engineers Pvt Limited

S.No	Analysis		Method	Result	Unit
1.	Colour	--	--	Gray	-
2.	Texture	--	F.A.U.N (2007)	Loamy Sand	-
3.	Bulk Density	--	By Bulk density Apparatus	1.9	gm/cm3
4.	Water Holding Capacity	--	F.A.U.N (2007)	24.1	%
5.	pH	--	F.A.U.N (2007)	7.2	-
6.	Electrical Conductivity	--	F.A.U.N (2007)	212	µs/cm
7.	Organic Carbon	--		0.60	%
8.	Organic Matter	--	Black & White Wet Digestion Method	0.90	%
9.	Available Nitrogen	--	Soil & Water Book by P.K Gupta	113.0	mg/kg
10.	Available Phosphorus	--	Soil & Water Book by P.K Gupta	14.2	mg/kg
11.	Available Potassium	--	Soil & Water Book by P.K Gupta	375	mg/kg
12.	Exchangeable Calcium	Ca	Soil & Water Book by P.K Gupta	24.5	meq/100gm
13.	Exchangeable Magnesium	Mg	Soil & Water Book by P.K Gupta	1.21	meq/100gm
14	Exchangeable Sodium	Na	Soil & Water Book by P.K Gupta	2.26	meq/100gm
15.	Exchangeable Potassium	K	Soil & Water Book by P.K Gupta	1.50	meq/100gm
16	Total Exchangeable Bases		Soil & Water Book by P.K Gupta	30.4	meq/100gm
17	Manganese	Mn	USEPA 3052	0.55	mg/kg
18	Arsenic	As	USEPA 3052	2.00	mg/kg
19	Silica	SiO_2	USEPA 3052	52.5	%
20.	Aluminum	Al_2O_3	USEPA 3052	7.2	%
21.	Iron	Fe_2O_3	USEPA 3052	5.0	%
22.	Calcium	CaO	USEPA 3052	8.4	%
23.	Magnesium	MgO	USEPA 3052	1.95	%
24.	Sodium	Na_2O	USEPA 3052	0.30	%
25.	Potassium	K_2O	USEPA 3052	0.28	%
26.	Sulphate	SO_4	USEPA 3052	0.79	%

For Mahabal Enviro Eng. Pvt. Ltd

Authorised Signatory

Vijay Pandey
SENIOR EXECUTIVE

Mahabal Enviro Eng. Pvt. Ltd. Ranchi

Mahabal Enviro Engineers Pvt. Ltd.

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E-mail:mahabalranchi@gmail.com

Hindalco Industries:Environmental Monitoring report **September 2014**

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample described by customer: DRINKING WATER

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: DRINKING WATER
Received:19.09.2014
Registered: 19.09.2014
Marks on Sample: Location: Netarhat Plateau
Sample collected on: 18.09.2014
Quantity: 5 L X 2 No. PVC Can
Test Start/End Date: 19.09.2014/22.09.2014
Sample collected by: Mahabal EnviroEngineers Pvt Limited

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
1.	Colour	Hazen	< 1	5 Max	APHA 22nd Ed. 2012, 2120-B, 2-6
2.	Odour	-	Agreeable	Agreeable	IS 3025 (Part 5):1983, Reaffirmed 2006
3.	Taste	-	Agreeable	Agreeable	IS 3025 (Part 7):1984, Reaffirmed 2006
4.	Turbidity	NTU	0.7	1 Max	APHA 22nd Ed. 2012, 2130-B, 2-13
5.	pH	-	6.9	6.5-8.5	APHA 22nd Ed. 2012, 4500-H+-B, 4-92
6.	Free Chlorides(Residual)	mg/l	<0.05	0.2 min	APHA 22nd Ed. 2012, 4500-Cl G, 4-69
7	Total Dissolved Solids	mg/l	89	500 Max	IS 3025 (Part 16):1984 Reaffirmed 2006
8.	Monochloramines	mg/l	<0.05	-	APHA 22nd Ed. 2012, 4500-ClG, 4-69
9.	Dichloramines	mg/l	<0.05	-	APHA 22nd Ed. 2012, 4500-ClG, 4-69
10.	Total Hardness (as $CaCO_3$)	mg/l	59	200 Max	APHA 22nd Ed. 2012, 2340-C, 2-44,45
11.	Alkalinity Total (as $CaCO_3$)	mg/l	63	200 Max	IS 3025 (Part 23):1986 Reaffirmed 2009
12.	Chloride (as Cl)	mg/l	7.9	250 Max	APHA 22nd Ed. 2012, 4500-Cl-B, 4-72
13.	Sulphate (as SO_4)	mg/l	4.3	200 Max	APHA 22nd Ed. 2012, 4500-SO4-E, 4-190

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Hindalco Industries:Environmental Monitoring report **September 2014**

S.No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14.	Nitrate (as NO3)	mg/l	1.14	45 Max	APHA 22nd Ed. 2012, 4500-NO_3-E, 4-125
15.	Fluoride (as F)	mg/l	0.20	1 Max	APHA 22nd Ed. 2012, 4500-FB& D, 4-84, 4-87
16.	Boron (as B)	mg/l	0.19	0.5 Max	APHA 22nd Ed. 2012, 4500-BB, 4-25
17.	Calcium(as Ca)	mg/l	18.0	75 Max	APHA 22nd Ed. 2012, 3500-Ca-B, 3-67
18.	Magnesium (as Mg)	mg/l	3.2	30 Max	APHA 22nd Ed. 2012, 3500- Mg- B, 3-84
19.	Ammonical Nitrogen/ Total Ammonia	mg/l	<0.1	-	APHA 22nd Ed. 2012, 4500 NH3-F, 4-115
20.	Iron (as Fe)	mg/l	0.18	0.3 Max	APHA 22nd Ed. 2012, 3111-B,3-18
21.	Manganese (as Mn)	mg/l	N.D	0.1 Max	APHA 22nd Ed. 2012, 3111-B, 318
22.	Aluminium (as Al)	mg/l	0.09	0.03 Max	APHA 22nd Ed. 2012, 3500- Al-B, 3-61
23.	Cadmium (as Cd)	mg/l	N.D	0.003 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
24.	Chromium Total (as Cr)	mg/l	N.D	0.05 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
25.	Copper (as Cu)	mg/l	N.D	0.05 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
26.	Lead (as Pb)	mg/l	N.D	0.01 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
27.	Zinc (as Zn)	mg/l	0.03	5 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
28.	Arsenic (as As)	mg/l	<0.01	0.01 Max.	APHA 22nd Ed. 2012, 3114-C,3-38
29.	Mercury (as Hg)	mg/l	N.D.	0.001 Max.	APHA 22nd Ed. 2012, 3112-B,3-23
30.	Selenium (as Se)	mg/l	N.D.	0.01 Max.	APHA 22nd Ed. 2012, 3114-C, 3-38
31.	Nickel (as Ni)	mg/l	<0.06	0.02 Max.	APHA 22nd Ed. 2012, 3111 B,3-18
32.	Mineral Oil	mg/l	N.D.	0.5 Max.	IS 3025 (Part 39): 1991, Reaffirmed 2003, Ed. 2.1
33.	Cyanide (as CN)	mg/l	N.D.	0.05 Max.	APHA 22nd Ed. 2012, 4500-CN, C & E, 4-39 & 4-44
34.	Anionic detergents as MBAS	mg/l	<0.1	0.2 Max.	APHA 22nd Ed. 2012, 5540-C, 5-53
35.	Phenolic compounds (as C_6H_5OH)	mg/l	N.D	0.001 Max.	APHA 22nd Ed. 2012, 5530- B & C, 5-47
36.	Polynuclear aromatic hydrocarbons (PAH)	µg/L	N.D	0.0001 mg/L Max.	APHA 22nd Ed. 2012, 6440, 6-93
37.	Polychlorinated Biphenyls (PCBs)	µg/L	N.D	0.0005 mg/l Max.	USEPA Method 8082
38.	Sulphide (as S)	mg/l	N.D	-	APHA 22nd Ed. 2012, 4500- S2-C 4-175 & F 4-178

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Hindalco Industries:Environmental Monitoring report **September 2014**

S.No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/ 100 mL	<1.1	N.D	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/ 100 mL	Absent	N.D	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9- 76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.01	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	δ - HCH	µg/L	N.D	0.04	US EPA 508-1995
13.	Butachlor	µg/L	N.D	125	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	190	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.3	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Eng. Pvt. Ltd.

Authorised Signatory

Mahabal Enviro Eng. Pvt. Ltd. Ranchi

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Hindalco Industries:Environmental Monitoring report **September 2014**

Report no: SEPT002/2014-15 Date: 1st October,2014

Sample described by customer: SURFACE WATER

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: SURFACE WATER
Received:19.09.2014
Registered: 19.09.2014
Marks on Sample: Location: Amtipani Mine – Water Harvesting Pond
Sample collected on: 18.09.2014
Quantity: 5 L X 2 No. PVC Can
Test Start/End Date: 19.09.2014/22.09.2014
Sample collected by: Mahabal EnviroEngineers Pvt Limited

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
1.	Colour	Hazen	< 1	5 Max	APHA 22nd Ed. 2012, 2120-B, 2-6
2.	Odour	-	Agreeable	Agreeable	IS 3025 (Part 5):1983, Reaffirmed 2006
3.	Taste	-	Agreeable	Agreeable	IS 3025 (Part 7):1984, Reaffirmed 2006
4.	Turbidity	NTU	0.3	1 Max	APHA 22nd Ed. 2012, 2130-B, 2-13
5.	pH	-	6.9	6.5-8.5	APHA 22nd Ed. 2012, 4500-H+-B, 4-92
6.	Free Chlorides(Residual)	mg/l	<0.05	0.2 min	APHA 22nd Ed. 2012, 4500-Cl G, 4-69
7	Total Dissolved Solids	mg/l	98	500 Max	IS 3025 (Part 16):1984 Reaffirmed 2006
8.	Monochloramines	mg/l	<0.05	-	APHA 22nd Ed. 2012, 4500-ClG, 4-69
9.	Dichloramines	mg/l	<0.05	-	APHA 22nd Ed. 2012, 4500-ClG, 4-69
10.	Total Hardness (as $CaCO_3$)	mg/l	46	200 Max	APHA 22nd Ed. 2012, 2340-C, 2-44,45
11.	Alkalinity Total (as $CaCO_3$)	mg/l	61.4	200 Max	IS 3025 (Part 23):1986 Reaffirmed 2009
12.	Chloride (as Cl)	mg/l	7.0	250 Max	APHA 22nd Ed. 2012, 4500-Cl-B, 4-72
13.	Sulphate (as SO_4)	mg/l	3.9	200 Max	APHA 22nd Ed. 2012, 4500-SO4-E, 4-190

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S.No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14.	Nitrate (as NO3)	mg/l	1.1	45 Max	APHA 22nd Ed. 2012, 4500-NO_3-E, 4-125
15.	Fluoride (as F)	mg/l	0.21	1 Max	APHA 22nd Ed. 2012, 4500-FB& D, 4-84, 4-87
16.	Boron (as B)	mg/l	0.19	0.5 Max	APHA 22nd Ed. 2012, 4500-BB, 4-25
17.	Calcium(as Ca)	mg/l	15.3	75 Max	APHA 22nd Ed. 2012, 3500-Ca-B, 3-67
18.	Magnesium (as Mg)	mg/l	3.9	30 Max	APHA 22nd Ed. 2012, 3500- Mg- B, 3-84
19.	Ammonical Nitrogen/ Total Ammonia	mg/l	<0.1	-	APHA 22nd Ed. 2012, 4500 NH3-F, 4-115
20.	Iron (as Fe)	mg/l	0.09	0.3 Max	APHA 22nd Ed. 2012, 3111-B,3-18
21.	Manganese (as Mn)	mg/l	N.D	0.1 Max	APHA 22nd Ed. 2012, 3111-B, 318
22.	Aluminium (as Al)	mg/l	0.06	0.03 Max	APHA 22nd Ed. 2012, 3500- Al-B, 3-61
23.	Cadmium (as Cd)	mg/l	N.D	0.003 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
24.	Chromium Total (as Cr)	mg/l	N.D	0.05 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
25.	Copper (as Cu)	mg/l	N.D	0.05 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
26.	Lead (as Pb)	mg/l	N.D	0.01 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
27.	Zinc (as Zn)	mg/l	0.10	5 Max.	APHA 22nd Ed. 2012, 3111-B,3-18
28.	Arsenic (as As)	mg/l	<0.01	0.01 Max.	APHA 22nd Ed. 2012, 3114-C,3-38
29.	Mercury (as Hg)	mg/l	N.D.	0.001 Max.	APHA 22nd Ed. 2012, 3112-B,3-23
30.	Selenium (as Se)	mg/l	N.D.	0.01 Max.	APHA 22nd Ed. 2012, 3114-C, 3-38
31.	Nickel (as Ni)	mg/l	<0.06	0.02 Max.	APHA 22nd Ed. 2012, 3111 B,3-18
32.	Mineral Oil	mg/l	N.D.	0.5 Max.	IS 3025 (Part 39): 1991, Reaffirmed 2003, Ed. 2.1
33.	Cyanide (as CN)	mg/l	N.D.	0.05 Max.	APHA 22nd Ed. 2012, 4500-CN, C & E, 4-39 & 4-44
34.	Anionic detergents as MBAS	mg/l	<0.1	0.2 Max.	APHA 22nd Ed. 2012, 5540-C, 5-53
35.	Phenolic compounds (as C_6H_5OH)	mg/l	N.D	0.001 Max.	APHA 22nd Ed. 2012, 5530- B & C, 5-47
36.	Polynuclear aromatic hydrocarbons (PAH)	µg/L	N.D	0.0001 mg/L Max.	APHA 22nd Ed. 2012, 6440, 6-93
37.	Polychlorinated Biphenyls (PCBs)	µg/L	N.D	0.0005 mg/l Max.	USEPA Method 8082
38.	Sulphide (as S)	mg/l	N.D	-	APHA 22nd Ed. 2012, 4500- S2-C 4-175 & F 4-178

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S.No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/ 100 mL	<1.1	N.D	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/ 100 mL	Absent	N.D	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9- 76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.01	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	δ - HCH	µg/L	N.D	0.04	US EPA 508-1995
13.	Butachlor	µg/L	N.D	125	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	190	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.3	US EPA 8141A -1994
22.	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23.	Phorate	µg/L	N.D	2	US EPA 8141A -1994
24.	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Conclusion: The Physical & Chemical Analysis report indicates that water is not contaminated.

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Engg. Pvt. Ltd.

Authorised Signatory

Mahabal Enviro Engg. Pvt. Ltd. Ranchi

Mahabal Enviro Engineers Pvt. Ltd.

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E-mail:mahabalranchi@gmail.com

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample Description: Measurement of Noise

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample Description: Measurement of Noise Level.
Sampling Method: Instrumental, Using Sound level Meter
Sampling Done by: Mahabal Enviro.
Test Start: 17.09.2014
End Date: 18.09.2014

Location / Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Month			Average of 24 continuous hours in Sep- 14		Average of 24 continuous hours in Sep- 14	
Netarhat Plateau	dB(A) L_{eq}	75	**55.0**	70	**49.0**	18/09/2014

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Eng. Pvt. Ltd.

Authorised Signatory

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E-mail:mahabalranchi@gmail.com

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample Description: Measurement of Noise: Spot Noise

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample: Location: Netarhat Plateau- Gurdari Mine pit
Sample Description: Measurement of Noise Level.
Sampling Method: Instrumental, Using Sound level Meter
Sampling Done by: Mahabal Enviro.
Test Start: 18.09.2014
End Date: 18.09.2014

Location / Identification	Unit	Limit (day)	Result	Dates
POCKLAN	dB(A) L_{eq}	75	67.9	18/09/2014
COMPRESSOR	dB(A) L_{eq}	75	70.6	18/09/2014
WAGAN DRILL	dB(A) L_{eq}	75	73.4	18/09/2014

Note : (i) The value is the Leq. of twenty readings taken in location (Day time).

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Engineers Pvt. Ltd.

Authorised Signatory

Mahabal Enviro E.E. Pvt. Ltd. Ranchi

Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:
At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,
Mobile No: +91 9431.102.102 / +91 9955.358.262,
E-mail:mahabalranchi@gmail.com

Report no: SEPT002/2014-15 Date: 1st October,2014

Sample Description: Measurement of Noise: Spot Noise

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample: Location: Netarhat Plateau- Kujam – I Mine pit
Sample Description: Measurement of Noise Level.
Sampling Method: Instrumental, Using Sound level Meter
Sampling Done by: Mahabal Enviro.
Test Start: 18.09.2014
End Date: 18.09.2014

Location / Identification	Unit	Limit (day)	Result	Dates
POCKLAN	dB(A) L_{eq}	75	68.2	18/09/2014
COMPRESSOR	dB(A) L_{eq}	75	70	18/09/2014
WAGAN DRILL	dB(A) L_{eq}	75	73	18/09/2014

Note : (i) The value is the Leq. of twenty readings taken in location (Day time).

Vijay Pandey
SENIOR EXECUTIVE

For Mahabal Enviro Eng. Pvt. Ltd.

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Hindalco Industries:Environmental Monitoring report **September 2014**

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample Description: Measurement of Noise: Spot Noise

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample: Location: Netarhat Plateau- Kujam – II Mine pit
Sample Description: Measurement of Noise Level.
Sampling Method: Instrumental, Using Sound level Meter
Sampling Done by: Mahabal Enviro.
Test Start: 18.09.2014
End Date: 18.09.2014

Location / Identification	Unit	Limit (day)	Result	Dates
POCKLAN	dB(A) L_{eq}	75	69.7	18/09/2014
COMPRESSOR	dB(A) L_{eq}	75	73	18/09/2014
WAGAN DRILL	dB(A) L_{eq}	75	72.9	18/09/2014

Note : (i) The value is the Leq. of twenty readings taken in location (Day time).

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Hindalco Industries:Environmental Monitoring report **September 2014**

Report no: SEPT002/2014-15 Date: 1st October,2014

Sample Description: Measurement of Noise: Spot Noise

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample: Location: Netarhat Plateau- Amtipani Mine pit
Sample Description: Measurement of Noise Level.
Sampling Method: Instrumental, Using Sound level Meter
Sampling Done by: Mahabal Enviro.
Test Start: 25.09.2014
End Date: 25.09.2014

Location / Identification	Unit	Limit (day)	Result	Dates
POCKLAN	dB(A) L_{eq}	75	67.8	18/09/2014
COMPRESSOR	dB(A) L_{eq}	75	71.1	18/09/2014
WAGAN DRILL	dB(A) L_{eq}	75	72.5	18/09/2014

Note : (i) The value is the Leq. of twenty readings taken in location (Day time).

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Hindalco Industries:Environmental Monitoring report **September 2014**

Report no: SEPT002/2014-15 **Date:** 1st October,2014

Sample described by customer: SOIL

Client Name: Hindalco Industries Limited
Client Address: Lohardaga
Postal Code: 835203
State: Jharkhand
Country: India
Sample type: SOIL
Received:23.09.2014
Registered: 23.09.2014
Marks on Sample: Location: Netarhat Plateau- Kujam & Amtipani
Sample collected on: 17.09.2014
Quantity: 2 kgs
Test Start/End Date: 23.09.2014/24.09.2014
Sample collected by: Mahabal Enviro Engineers Pvt Limited

S.No	Analysis		Method	Result	Unit
1.	Colour	--	--	Gray	-
2.	Texture	--	F.A.U.N (2007)	Loamy Sand	-
3.	Bulk Density	--	By Bulk density Apparatus	1.5	gm/cm3
4.	Water Holding Capacity	--	F.A.U.N (2007)	21.1	%
5.	pH	--	F.A.U.N (2007)	7.0	-
6.	Electrical Conductivity	--	F.A.U.N (2007)	200	µs/cm
7.	Organic Carbon	--		0.35	%
8.	Organic Matter	--	Black & White Wet Digestion Method	0.85	%
9.	Available Nitrogen	--	Soil & Water Book by P.K Gupta	110.2	mg/kg
10.	Available Phosphorus	--	Soil & Water Book by P.K Gupta	13.5	mg/kg
11.	Available Potassium	--	Soil & Water Book by P.K Gupta	356	mg/kg
12.	Exchangeable Calcium	Ca	Soil & Water Book by P.K Gupta	23.2	meq/100gm
13.	Exchangeable Magnesium	Mg	Soil & Water Book by P.K Gupta	1.20	meq/100gm
14	Exchangeable Sodium	Na	Soil & Water Book by P.K Gupta	2.30	meq/100gm
15.	Exchangeable Potassium	K	Soil & Water Book by P.K Gupta	1.51	meq/100gm
16	Total Exchangeable Bases		Soil & Water Book by P.K Gupta	30.1	meq/100gm
17	Manganese	Mn	USEPA 3052	0.53	mg/kg
18	Arsenic	As	USEPA 3052	2.01	mg/kg
19	Silica	SiO_2	USEPA 3052	51.2	%
20.	Aluminum	Al_2O_3	USEPA 3052	7.0	%
21.	Iron	Fe_2O_3	USEPA 3052	5.2	%
22.	Calcium	CaO	USEPA 3052	8.3	%
23.	Magnesium	MgO	USEPA 3052	1.45	%
24.	Sodium	Na_2O	USEPA 3052	0.20	%
25.	Potassium	K_2O	USEPA 3052	0.18	%
26.	Sulphate	SO_4	USEPA 3052	0.89	%

For Mahabal Enviro Eng. Pvt. Ltd.

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