

MINERALS & MINERALS LIMITED

Regd. Office P.O. & Dist. – Lohardaga (Jharkhand) PIN – 835302

Phone: 06526-224016, 224112, FAX: 06526-224118

Ref No: M&M/LHD/IP (M)/MoEF/ 1241

Date: 23.11.2016

To,

The Additional Principal Chief Conservator of Forest (C)
Ministry of Environment, Forests and Climate Changes
Regional Office (ECZ), Ranchi-834002.

Sub: **Compliance Report of EC conditions for Pakhar (15.58 ha) Bauxite Mining project of M/s Minerals & Minerals Limited located in Lohardaga, Jharkhand for the period April'16-Sep'16.**

Ref: **Environmental Clearance letter no J-11015/123/2006-IA II (M) dated 24th January 2007**

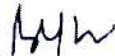
Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Pakhar (15.58 ha) Bauxite Mining project of M/s Minerals & Minerals Limited**, located in Lohardaga, Jharkhand for the period **April'16-Sep'16**.

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR Minerals & Minerals Limited


(Bijesh Kumar Jha)
Agent of Mines

Enclosure: - As Above

Copy to: Member Secretary, JSPCB, Ranchi

RO, JSPCB, Ranchi

<mef@ori.nic.in>, <mef@nic.in>, <mef.or@nic.in>, mef.or@nic.in

Compliance of conditions laid down in Environmental Clearance

PAKHAR BAUXITE MINES(15.58 Ha)

MINERALS & MINERALS LTD.

Period: April'16-Sep'16

J-11015/123/2006-IA.II(M) Dated 24.01.2007

Sl No	Conditions	Compliance Status
Specific Conditions		
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Implementations of the stipulated condition are fulfilled. Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO.
2	The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use.	Mining Lease is granted by the State Govt. after due consideration and Cabinet approval on recommendation of DC who is the competent authority to give permission for using the agricultural land for non-agricultural purpose.
3	Mining shall not intersect groundwater. The mine working shall be restricted to ground water table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Shallow depth mining was carried out so mining not intersected ground water. Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO.
4	The project proponent shall ensure that no natural watercourse shall be obstructed due to any mining operation.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.
5	Top soil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.
6	The waste generated shall be concurrently backfilled in the mined out area. There shall be no external OB dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forest on six monthly basis.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.

7	<p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine working. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted particularly after monsoon and maintained properly.</p> <p>Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper setting of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p>	<p>Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.</p>
8	<p>Plantation shall be raised in an area of 6.98ha including a green belt of adequate width by planting the native species around the ML area, roads, reclaimed area etc. in consultation with the local DFO / Agriculture Department. The density of the trees should be around 1500 plants per ha.</p>	<p>This will be complied with the progress of mining activity as complied in past post resumption of mining activity.</p>
9	<p>The project proponent shall ensure that there shall be no discharge from the mine.</p>	<p>Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.</p>
10	<p>The Project proponent shall carry out regular monitoring of spring discharge and its quality near Pakhar village on long term basis.</p>	<p>Monitoring is being carried out by recognized agency.</p>
11	<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>Will be implemented after resume of mining activity.</p>
12	<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</p>	<p>It is being monitored. Report enclosed.</p>

	Authority and Regional Director Central Ground Water Board.	
13	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. We will not use natural water/ground water for mining purpose.
14	Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. This will be complied with the progress of mining activity as complied in past post resumption of mining activity.
15	Drills should either be operated with dust extractors or should be equipped with water injection system.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. This will be complied with the progress of mining activity as complied in past post resumption of mining activity.
16	Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibration and to arrest fly rocks and boulders should be implemented.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. This will be complied with the progress of mining activity as complied in past post resumption of mining activity.
17	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. All procedure for getting the lease renewal has been done & very shortly mine will be operative.
18	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	There is no effluent from mine; hence ETP has not been installed.
19	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python etc. Spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The copy of Action plan for conservation of flora and fauna (Pakhar Plateau) is attached herewith and implementation for Pakhar Plateau under implementation..

20	A Final Mine Closure plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forest 5 years in advance of final mine closure for approval.	Progressive Mine closure plan has been dully approved by Indian Bureau of Mines. FMCP related provision will be compiled as per statue.
----	--	---

GENERAL CONDITIONS

Sl No	Conditions	Compliance Status
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forest	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.
3	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , NO _x monitoring. Location of the stations should be decided based on the metrological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Complied. Monitoring Reports is enclosed as Annexure .
4	Data on ambient air quality (RPM, SPM, SO ₂ , NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central pollution Control Board once in six months.	Complied. Monitoring Reports is enclosed as Annexure .
5	Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.
6	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operation of HEMM, etc. should be provided with ear plug / muffs.	Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.

7	<p>Industrial waste water (workshops and waste water from the mine) Should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 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.</p>	<p>Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.</p>
8	<p>Personnel working in dusty areas should wear protective respiratory devices and they should also provided with adequate training and information on safety and health aspects.</p> <p>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.</p>	<p>Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The provision set herewith will be complied with the progress of mining activity as complied in past post resumption of mining activity.</p>
9	<p>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.</p>	<p>Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO.</p>
10	<p>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.</p>	<p>This falls the category of operational mine and not project, therefore provision related to financial closure is not applicable.</p>
11	<p>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.</p>	<p>Mines is discontinued since Sep'2014 due to second renewal case as per directive by DMO. The funds are ear-marked for environmental protection.</p>
12	<p>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.</p>	<p>Agreed.</p>
13	<p>A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.</p>	<p>Complied.</p>
14	<p>State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Center and Collector's office / Tehsildar's Office for 30 days.</p>	<p>Displayed.</p>
15	<p>The project authorities should advertise at least in two local newspapers widely circulated, one of which locality concerned, within 7days of the issue of the</p>	<p>Complied. Copies of the advertisement made in the local newspapers, have already been submitted to the Regional</p>

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.	Office.
---	---------



Eco Ventures Pvt. Ltd.

Regd. Office: 2/37, Sarvapriya Vihar, Near III Gate, New Delhi-110016

Corporate Office: 7/B, Bhaveshwar Druvan, Opp Portuguese Church, Near Udayan Upasthway Garden,
Gokhale Road (North), Dadar (West), Mumbai 400 028. Tel: +91 22 24370520 / 6677

✉ 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

PAKHAR PLATEAU- ENVIRONMENTAL MONITORING REPORT

APRIL TO JUNE 2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Bandyopadhyay
SENIOR EXECUTIVE





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

April- June 2016

CONTENT

	LOCATION
	AMBIENT AIR QUALITY
1	Pakhar Plateau- Near Office
2	Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4
3	Pakhar Plateau- Pakhar Quarry (109.507 ha. Near Shed)
4	Pakhar Plateau Pakhar Mines(109.507 ha. Yatri Shed)
5	Pakhar Plateau- Pakhar Loading Area (109.507 ha.)
6	Pakhar Plateau-Near Weigh Bridge
	NOISE LEVEL
1	Pakhar Near Office
2	Pakhar Mine (115.13 ha.) Pakhar Plateau
3	Pakhar Mine (109.507 ha. Loading Area) Pakhar Plateau
4	Pakhar Mine (109.507 Ha Yatri Shed) Pakhar Plateau
5	Pakhar Quarry (Near Shed)
	SPOT NOISE LEVEL
1	Near Poclain at Pakhar Mine (115.13 ha.)
2	Loading point near Dumper at Pakhar Mines (109.507 ha. Minerals & Minerals)
	DRINKING WATER
1	Pakhar Mine-Near Canteen
	SURFACE WATER
1	Pakhar Mine-115.13 Quarry





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

April- June 2016

Report no: : MEEPL/ JULY074/2016-17

Date: 18th July, 2016

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

Marks on Sample: Location: Pakhar Plateau-Near Office

Sample collected on: 16.06.2016

Received: 20.06.2016

Registered: 20.06.2016

Test Start/End Date: 20.06.2016/23.06.2016

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Office

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	61.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	40.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	24.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	32.5
05.	Ammonia (NH ₃)	µg/m ³	400	13.6
06.	Ozone (O ₃)	µg/m ³	180	10.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.50
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	8.9
10.	Arsenic (As)	ng/m ³	06	2.89
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

V. V. Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(600 m from Hotel Rukhmin 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

April-June 2016

Report no: : MEEPL/ JULY075/2016-17	Date: 18 th July, 2016
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	
Marks on Sample: Location: Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4	
Sample collected on: 16.06.2016	
Received: 20.06.2016	
Registered: 20.06.2016	
Test Start/End Date: 20.06.2016/23.06.2016	

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	40.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	29.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	41.2
05.	Ammonia (NH ₃)	µg/m ³	400	8.90
06.	Ozone (O ₃)	µg/m ³	180	9.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.51
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	8.1
10.	Arsenic (As)	ng/m ³	06	2.89
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.51

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(600 m from Hotel Rudhinar 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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April-June 2016

Report no: : MEEPL/ JULY076/2016-17

Date: 18th July, 2016

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

Marks on Sample: Location: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Near Shed)

Sample collected on: 16.06.2016

Received: 20.06.2016

Registered: 20.06.2016

Test Start/End Date: 20.06.2016/23.06.2016

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Near Shed)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	53.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	38.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	26.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	41.2
05.	Ammonia (NH ₃)	µg/m ³	400	9.20
06.	Ozone (O ₃)	µg/m ³	180	8.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.51
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	8.5
10.	Arsenic (As)	ng/m ³	06	2.89
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.42

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
1000 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room Near I 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

April- June 2016

Report no: : MEEPL/ JULY077/2016-17

Date: 18th July, 2016

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

Marks on Sample: Location: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)

Sample collected on: 17.06.2016

Received: 21.06.2016

Registered: 21.06.2016

Test Start/End Date: 21.06.2016/24.06.2016

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	54.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	29.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	40.7
05.	Ammonia (NH ₃)	µg/m ³	400	8.9
06.	Ozone (O ₃)	µg/m ³	180	8.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.51
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	10.1
10.	Arsenic (As)	ng/m ³	06	2.89
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.51

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(100 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

April- June 2016

Report no: : MEEPL/ JULY078/2016-17

Date: 18th July, 2016

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

Marks on Sample: Location: Pakhar Plateau- 109.507 ha. Loading Area.

Sample collected on: 17.06.2016

Received: 21.06.2016

Registered: 21.06.2016

Test Start/End Date: 21.06.2016/24.06.2016

LOCATION / IDENTIFICATION: Pakhar Plateau- 109.507 ha. Loading Area.

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	56.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	24.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	38.5
05.	Ammonia (NH ₃)	µg/m ³	400	7.54
06.	Ozone (O ₃)	µg/m ³	180	8.92
07.	Carbon Monoxide (CO)	mg/m ³	02	0.48
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	9.4
10.	Arsenic (As)	ng/m ³	06	2.92
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.42

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
1000 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

April- June 2016

Report no: : MEEPL/ JULY079/2016-17

Date: 18th July, 2016

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

Marks on Sample: Location: Pakhar Plateau-Near Weigh Bridge

Sample collected on: 17.06.2016

Received: 21.06.2016

Registered: 21.06.2016

Test Start/End Date: 21.06.2016/24.06.2016

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	58.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	30.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	41.2
05.	Ammonia (NH ₃)	µg/m ³	400	8.9
06.	Ozone (O ₃)	µg/m ³	180	8.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.45
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	9.9
10.	Arsenic (As)	ng/m ³	06	2.91
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.46

For Mahabal Enviro Engineers Pvt. Ltd.

Vicky Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(1000 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room Near I 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: mahabafanchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Report no: : MEEPL/ JULY080/2016-17

Date: 18th July, 2016

Sample described by customer: Measurement of Noise

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: Measurement of Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 16.06.2016

Analyse Date: 16.06.2016

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakbar Near Office	dB (A) L_{eq}	75	48.9	70	45	16.06.2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey

SENIOR EXECUTIVE



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 Sawani 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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Report no: : MEEPI/ JULY081/2016-17

Date: 18th July, 2016

Sample described by customer: **Measurement of Noise**

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Noise**

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **16.06.2016**

Analyse Date: **16.06.2016**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Mines (115.13 ha)	dB (A) L_{eq}	75	62.0	70	41.2	16/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey

SENIOR EXECUTIVE



Head Office: Plot No: F-7, Road No: 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(600 m from Hotel Bukhara 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

April- June 2016

Report no: : MEEPL/ JULY082/2016-17

Date: 18th July 2016

Sample described by customer: **Measurement of Noise**

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Noise**

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **16.06.2016**

Analyse Date: **16.06.2016**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Mine (109.507 ha. of Minerals & Minerals)	dB (A) L_{eq}	75	65.0	70	39.8	16/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vaidy Pandey

SENIOR EXECUTIVE





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: mahabalanranchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Report no: : MEEPL/ JULY083/2016-17

Date: 18th July 2016

Sample described by customer: **Measurement of Noise**

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: Measurement of Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **17.06.2016**

Analyse Date: **17.06.2016**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Mine (109.507 Ha. of Yatri Shed)	dB (A) L _{eq}	75	54.5	70	42.5	17/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE





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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April-June 2016

Report no: : MEEPL/ JULY084/2016-17

Date: 18th July, 2016

Sample described by customer: **Measurement of Noise**

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Noise**

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: 17.06.2016

Analyse Date: 17.06.2016

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Quarry (Near Shed)	dB (A) L _{eq}	75	52.1	70	43.5	17/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Dantey
SENIOR EXECUTIVE





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

April- June 2016

Report no: : MEEPL/ JULY085/2016-17	Date: 18 th July 2016
Sample described by customer: Measurement of Spot Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 17.06.2016	
Analyse Date: 17.06.2016	

Location/Identification	Unit	Limit (day)	Result	Dates
Pakhar Mines	dB (A) L_{eq}	75	64.0	17/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
1000 m from Hotel Rukhmani Palace Tarni 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

April- June 2016

Report no: : MEEPL/ JULY086/2016-17

Date: 18th July 2016

Sample described by customer: **Measurement of Spot Noise**

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Spot Noise**

Sampling Method: Instrumental, using Sound level Meter

Data Collection Date: 17.06.2016

Analyse Date: 17.06.2016

Location/Identification	Unit	Limit (day)	Result	Dates
Pakhar Mines (109.507 ha OI Minerals & Minerals) Loading point near Dumper	dB (A) L _{eq}	75	71.2	17/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey

SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(500 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room Near I B Sawani 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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Report No: MEEPL/JULY087/2016-17	Date: 18 th July, 2016
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Near Canteen	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 17.06.2016	
Received: 18.06.2016	
Registered: 18.06.2016	
Test Start/End Date: 18.06.2016/22.06.2016	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120 B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.32	1 Max	APHA 22 nd Ed. 2012, 2130 B, 2-13
5	pH	--	7.1	6.5-8.5	APHA 22 nd Ed. 2012, 4500 H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.05	0.2 min	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
7	Total Dissolved Solids	mg/l	100	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
10	Total hardness (as CaCO ₃)	mg/l	71	200 max	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	79	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	10.5	250 max	APHA 22 nd Ed. 2012, 4500 Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	6.5	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
1000 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

April- June 2016

Continuation Sheet
MEEPL/JULY087/2016-17

Report No: MEEPL/JULY087/2016-17					
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Date: 18 th July, 2016 Method reference
13	Nitrate (as NO ₃)	mg/l	1.10	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -L, 4-125
15	Fluoride (as F)	mg/l	0.5	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.12	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25.
17	Calcium (as Ca)	mg/l	20.1	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	6.0	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.12	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 4-41
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.15	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	0.006	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
30	Mercury (as Hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.008	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39) 1991, Re-affirmed 2003, ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 4500-CN-C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd Ed. 2012, 5540-CO & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 5530-B & C, 5-475.3
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd Ed. 2012, 6440, 6-101
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 4500-S ₂ -G, 4-175 & F 4-178



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
1600 m from Hotel Bakharaai 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: mahabalaranchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Continuation Sheet
MEEPL/JULY087/2016-17

Report No: MEEPL/JULY087/2016-17		Date: 18 th July, 2016			
Sl. No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Coliforms	MPN/100mL	N.D	<1.1	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	Es.Coli	MPN/100mL	N.D	Absent	APHA 22 nd Ed. 2012, 9221-B & C, 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 508-1995
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	Methoxy 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 the water is not contaminated and potable

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE





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: mahabalanranchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Report No: MEEPL/JULY088/2016-17

Date: 18th July, 2016

Sample described by customer : SURFACE WATER - POTABILITY

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Type: SURFACE WATER

Marks on Sample: Location: 115.13 Quarry

Quantity: 5 L X 2 No. PVC Can

Sample collected on: 17.06.2016

Received: 18.06.2016

Registered: 18.06.2016

Test Start/End Date: 18.06.2016/22.06.2016

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012 2120 B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7) 1983 Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7) 1983 Reaffirmed 2006
4	Turbidity	NTU	0.32	1 Max	APHA 22 nd Ed. 2012 21 00 B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 nd Ed. 2012 4500 H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.05	0.2 min	APHA 22 nd Ed. 2012 4500 Cl-C, 4-69
7	Total Dissolved Solids	mg/l	100	500 max	IS 3025 (Part 16) 1984 Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012 4500 ClG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012 4500 ClG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	72	200 max	APHA 22 nd Ed. 2012 4500 ClG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	80	200 max	IS 3025 (Part 237) 1986 Reaffirmed 2009
12	Chloride (as Cl)	mg/l	10.2	250 max	APHA 22 nd Ed. 2012 4500 Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	7.2	200 max	APHA 22 nd Ed. 2012 4500 so4-c, 4-190



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
 (600 m from Hotel Rukhmini Palace Turn Opp Toynta 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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Continuation Sheet
MEEPL/JULY088/2016-17

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO ₃)	mg/l	1.25	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -F, 4-125
15	Fluoride (as F)	mg/l	0.2	1 max	APHA 22 nd Ed. 2012, 4500-FR & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.24	0.5 max	APHA 22 nd Ed. 2012, 4500-BR, 4-25
17	Calcium (as Ca)	mg/l	21.2	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-6
18	Magnesium (as Mg)	mg/l	6.0	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-14
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.10	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.05 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-11
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.15	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
30	Mercury (as Hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.008	0.02 max	APHA 22 nd 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 22 nd Ed. 2012, 4500-CN-C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd Ed. 2012, 5540-CC & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 5530-B & 5-475.3
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd Ed. 2012, 6440, 6-9
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 4500-S ₂ -F, 4-175 & F 4-178



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: mahabalaranchi@gmail.com

Hindalco Industries: Environmental Monitoring report

April- June 2016

Continuation Sheet
MEEPL/JULY088/2016-17

Report No: MEEPL/JULY088/2016-17

Date: 18th July 2016

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Coliforms	MPN/100ml	N.D	<1.1	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100ml	N.D	Absent	APHA 22 nd Ed. 2012, 9221-B & C, 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	Buthachlor	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 508-1995
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	Methoyl 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

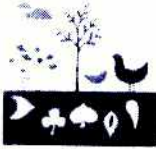
Remarks: N.D- Not Detected

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

Regd. Office: 237, Sarvanya Vihar, Near P1 Gate, New Delhi-110015
Corporate Office: 7/8 Bhaveshwar Bhuvan, Opp Portuguese Church, Near Dindayal Upadhyay Garden,
Gokhale Road (North), Dadar (West), Mumbai-400028. Tel: +91 22 24370520 / 6672
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

PAKHAR PLATEAU- ENVIRONMENTAL MONITORING REPORT

JULY TO SEPTEMBER 2016

For Mahabal Enviro Engineers Pvt. Ltd.

A.S. Prudhvi
SENIOR EXECUTIVE





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

JULY – SEPTEMBER 2016

CONTENT

	LOCATION
	AMBIENT AIR QUALITY
1	Pakhar Plateau- Near Office
2	Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4
3	Pakhar Plateau- Pakhar Quarry (109.507 ha. Near Shed)
4	Pakhar Plateau Pakhar Mines(109.507 ha. Yatri Shed)
5	Pakhar Plateau- Pakhar Loading Area (109.507 ha.)
6	Pakhar Plateau- Near Weigh Bridge
	NOISE LEVEL
1	Pakhar Near Office,
2	Pakhar Mine (115.13 ha) Pakhar Plateau
3	Pakhar Mine (109.507 ha. Loading Area) Pakhar Plateau
4	Pakhar Mine (109.507 Ha Yatri Shed) Pakhar Plateau
5	Pakhar Quarry (Near Shed)
	SPOT NOISE LEVEL
1	Near Poclaim at Pakhar Mine (115.13 ha.)
2	Loading point near Dumper at Pakhar Mines (109.507 ha. Minerals & Minerals)
	DRINKING WATER
1	Pakhar Mine- Near Canteen
	SURFACE WATER
1	Pakhar Mine-115.13 Quarry





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

JULY – SEPTEMBER 2016

Report no: MEEPL/OCT0147/2016-17

Date: 31st October, 2016

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

Marks on Sample: Location: Pakhar Plateau-Near Office

Sample collected on: 22.09.2016

Received: 23.09.2016

Registered: 23.09.2016

Test Start/End Date: 23.09.2016/25.09.2016

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Office

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	68.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	26.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	34.8
05.	Ammonia (NH ₃)	µg/m ³	400	14.1
06.	Ozone (O ₃)	µg/m ³	180	17.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.42
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	5.1
10.	Arsenic (As)	ng/m ³	06	2.74
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.5
12.	Benzo (a) Pyrene	µg/m ³	01	0.36

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
1600 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: mahabalaranchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0148/2016-17

Date: 31st October, 2016

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

Marks on Sample: Location: Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4

Sample collected on: 25.09.2016

Received: 26.09.2016

Registered: 26.09.2016

Test Start/End Date: 26.09.2016/28.09.2016

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar (115.13 ha.) Quarry No. 4

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	43.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	21.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	34.0
05.	Ammonia (NH ₃)	µg/m ³	400	11.5
06.	Ozone (O ₃)	µg/m ³	180	13.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.48
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	6.4
10.	Arsenic (As)	ng/m ³	06	2.72
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.47

For Mahabal Enviro Engineers Pvt. Ltd.

Anur Pandey
SENIOR EXECUTIVE



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 I 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:mahabalaranchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY - SEPTEMBER 2016

Report no: : MEEPL/ OCT0149/2016-17

Date: 31st October, 2016

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

Marks on Sample: Location: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Near Shed)

Sample collected on: 22.09.2016

Received: 23.09.2016

Registered: 23.09.2016

Test Start/End Date: 23.09.2016/25.09.2016

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Near Shed)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	22.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	39.2
05.	Ammonia (NH ₃)	µg/m ³	400	12.1
06.	Ozone (O ₃)	µg/m ³	180	16.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.49
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	6.4
10.	Arsenic (As)	ng/m ³	06	2.85
11.	Benzene (C ₆ H ₆)	ug/m ³	05	2.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Anur Pandey
SENIOR EXECUTIVE



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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no. : MEEPL/OCT0150/2016-17

Date: 31st October, 2016

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

Marks on Sample: Location: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)

Sample collected on: 25.09.2016

Received: 26.09.2016

Registered: 26.09.2016

Test Start/End Date: 26.09.2016/28.09.2016

LOCATION / IDENTIFICATION: Pakhar Plateau- Pakhar Quarry 109.507 ha. (Yatri Shed)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	42.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	21.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	35.8
05.	Ammonia (NH ₃)	µg/m ³	400	11.3
06.	Ozone (O ₃)	µg/m ³	180	17.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.51
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	7.2
10.	Arsenic (As)	ng/m ³	06	2.84
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.49

For Mahabal Enviro Engineers Pvt. Ltd.

Anay Pandey
SENIOR EXECUTIVE



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

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0151/2016-17

Date: 31st October, 2016

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

Marks on Sample: Location: Pakhar Plateau- 109.507 ha. Loading Area.

Sample collected on: 22.09.2016

Received: 23.09.2016

Registered: 23.09.2016

Test Start/End Date: 23.09.2016/25.09.2016

LOCATION / IDENTIFICATION: Pakhar Plateau- 109.507 ha. Loading Area.

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	61.8
02	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.3
03	Sulphur Dioxide (SO ₂)	µg/m ³	80	23.7
04	Nitrogen Dioxide (NO ₂)	µg/m ³	80	38.1
05	Ammonia (NH ₃)	µg/m ³	400	9.5
06	Ozone (O ₃)	µg/m ³	180	13.7
07	Carbon Monoxide (CO)	mg/m ³	02	0.45
08	Lead (Pb)	µg/m ³	1.0	0.02
09	Nickel (Ni)	ng/m ³	20	8.1
10	Arsenic (As)	ng/m ³	06	2.90
11	Benzene (C ₆ H ₆)	µg/m ³	05	2.8
12	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Virey Pandey

SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
 (600 m from Hotel Rushmati Palace Turn Opp Toyota Show Room Near I 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

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0152/2016-17	Date: 31 st October, 2016
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	
Marks on Sample: Location: Pakhar Plateau-Near Weigh Bridge	
Sample collected on: 25.09.2016	
Received: 26.09.2016	
Registered: 26.09.2016	
Test Start/End Date: 26.09.2016/28.09.2016	

LOCATION / IDENTIFICATION: Pakhar Plateau-Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	63.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	26.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	39.5
05.	Ammonia (NH ₃)	µg/m ³	400	10.2
06.	Ozone (O ₃)	µg/m ³	180	13.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.48
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	8.1
10.	Arsenic (As)	ng/m ³	06	2.83
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE





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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY - SEPTEMBER 2016

Report no: : MEEPL/ OCT0153/2016-17	Date: 31 st October, 2016
Sample described by customer: Measurement of Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 22.09.2016	
Analyse Date: 23.09.2016	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Near Office	dB (A) L _{eq}	75	51.1	70	43.5	22.09.2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(600 m from Hotel Rukhmani 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 9955.368.262,

E-mail: mahabalranchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0154/2016-17

Date: 31st October, 2016

Sample described by customer: **Measurement of Noise**

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Noise**

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **22.09.2016**

Analyse Date: **22.09.2016**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Mines (115.13 ha.)	dB (A) L_{eq}	75	58.9	70	46.1	22.09.2016

For Mahabal Enviro Engineers Pvt. Ltd.

Day Pradeep

SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
7600 m from Hotel Rukhmani Palace Turn Opp Toyota Show Room Near I 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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0155/2016-17

Date: 31st October 2016

Sample described by customer: **Measurement of Noise**

Client Name: **Hindalco Industries Limited**

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Noise**

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **22.09.2016**

Analyse Date: **22.09.2016**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Mine (109.507 ha. of Minerals & Minerals)	dB (A) L _{eq}	75	61.8	70	36.2	22/09/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0156/2016-17

Date: 31st October, 2016

Sample described by customer: **Measurement of Noise**

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: Measurement of Noise

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **22.09.2016**

Analyse Date: **22.09.2016**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Mine (109.507 ha. of Yatri Shed)	dB (A) Leq	75	52.8	70	40.0	22.09.2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0157/2016-17

Date: 31st October, 2016

Sample described by customer: **Measurement of Noise**

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Noise**

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **22.09.2016**

Analyse Date: **22.09.2016**

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Pakhar Quarry (Near Shed)	dB (A) L_{eq}	75	50.9	70	41.4	22.09.2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vinay Pandey
SENIOR EXECUTIVE





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

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0158/2016-17	Date: 31 st October 2016
Sample described by customer: Measurement of Spot Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 22.09.2016	
Analyse Date: 22.09.2016	

Location/Identification	Unit	Limit (day)	Result	Dates
Bakhar Mines	dB (A) L _{eq}	75	62.1	22.09.2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
3000 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: mahabalaranchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0159/2016-17

Date: 31st October, 2016

Sample described by customer: **Measurement of Spot Noise**

Client Name: Hindalco Industries Limited

Client Address: Lohardaga

Postal Code: 835203

State: Jharkhand

Country: India

Sample Description: **Measurement of Spot Noise**

Sampling Method: Instrumental, using Sound level Metter

Data Collection Date: **22.09.2016**

Analyse Date: **22.09.2016**

Location/Identification	Unit	Limit (day)	Result	Dates
Pakhar Mines (109.507 ha. Of Minerals & Minerals) loading point near Dumper	dB (A) L_{eq}	75	68.5	22.09.2016

For Mahabal Enviro Engineers Pvt. Ltd.

Jayant Bandyopadhyay

SENIOR EXECUTIVE



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(600 m. from Hotel Rukhmin 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: mahabalaranchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY - SEPTEMBER 2016

Report no: : MEEPL/ OCT0160/2016-17	Date: 31 st October, 2016
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Near Canteen	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 22.09.2016	
Received: 22.09.2016	
Registered: 22.09.2016	
Test Start/End Date: 22.09.2016/24.09.2016	

Sl.No	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120 B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983 Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983 Reaffirmed 2006
4	Turbidity	NTU	0.28	1 Max	APHA 22 nd Ed. 2012, 1130 B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 nd Ed. 2012, 1500 H+ B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.05	0.2 min	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
7	Total Dissolved Solids	mg/l	85	500 max	IS 3025 (Part 16): 1983 Reaffirmed 2006
8	Mono-chloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
9	Di-chloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
10	Total hardness (as CaCO ₃)	mg/l	64	200 max	APHA 22 nd Ed. 2012, 4500 Cl-G, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	68	200 max	IS 3025 (Part 217): 1983 Reaffirmed 2006
12	Chloride (as Cl)	mg/l	9.1	250 max	APHA 22 nd Ed. 2012, 4500 Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	4.8	200 max	APHA 22 nd Ed. 2012, 4500 so4-e, 4-190



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
 1700 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

JULY – SEPTEMBER 2016

Continuation Sheet

MEEPL/OCT0160/2016-17

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Date: 31 st October, 2016 Method reference
14	Nitrate (as NO ₃)	mg/l	1.02	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -F, 4-125
15	Fluoride (as F)	mg/l	0.2	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.07	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	18.5	75 max	APHA 22 nd Ed. 2012, 4500-Ca-B, 4-67
18	Magnesium (as Mg)	mg/l	5.1	30 max	APHA 22 nd Ed. 2012, 4500-Mg-B, 3-81
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1		APHA 22 nd Ed. 2012, 4500-NH ₃ -B, 4-115
20	Iron (as Fe)	mg/l	0.12	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.13	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	0.006	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
30	Mercury (as Hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
31	Nickel (as Ni)	mg/l	<0.008	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Re-affirmed 2003; ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 4500-CN-C, 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd Ed. 2012, 5540-C, C & 5-5.4
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 5530-B & C, 4-75.3
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd Ed. 2012, 6440, 6-82
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 4500-S ₂ -C, 4-175 & F 4-178



Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
(100 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: mahabairanchi@gmail.com

Hindalco Industries: Environmental Monitoring Report

JULY – SEPTEMBER 2016

Continuation Sheet
MEEPL/OCT0160/2016-17

Report no: : MEEPL/OCT0160/2016-17

Date: 31st October, 2016

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Coliforms	MPN/100mL	N.D	<1.1	APHA 22 nd Ed. 2012, 9221-B & C, 9.00, 9.01 and 9.67
2	E.Coli	MPN/100mL	N.D	Absent	APHA 22 nd Ed. 2012, 9221-B & C, 9.00, 9.01 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 508-1995
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	Methoxy 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 the water is not contaminated and potable

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



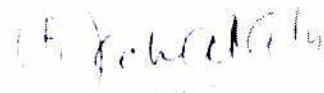
Head Office: Plot No. F-7, Road No. 21, Wagle Estate, Thane West - 400604, Maharashtra, India
1600 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room Near J B Sawant Bus Stop
Phone: 2582 0658/ 3139/ 1663/ 3154 Fax: 91-22-25823543 thane@mahabal.com

Date: 05.09.16

Office Order

Environmental Cell has been re-constituted at Pakhar Bauxite Mines (Area 15.58 Ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Pradeep Kumar Bhaleker- Manager (Coordinator)
2. Mr. Akhilesh Singh (Mine Surveyor)-Member
3. Mr. Ramnath Bhagat (Mining Mate)-Member



(B.K. Mahapatra)
Convenor (Quality & Environment)

PRODUCTION, MINED OUT, BACKFILLED, PRODUCTION AND OVERBURDEN REMOVAL FROM APR-16 to SEP-16

NAME OF THE MINES	MINING LEASE AREA (In HA)	MINED OUT AREA (In HA)	BACK FILLED AREA (In HA)	PRODUCTION (In MT)	OVERBURDEN (In Cu.M)
Shrengdag Bauxite Mines	155.81	2.90	2.81	137435.00	420085.00
Gurdari Bauxite Mines	584.19	5.40	5.10	169330.00	279253.00
Jalim & Sanai	12.14	0.51	0.20	24170.00	26587.00
Serangdag	140.06	0.00	0.00	0.00	0.00
Pakhar Buxite Mines	115.13	3.01	3.57	130110.00	166727.48
Pakhar Buxite Mines	8.09	0.00	0.00	0.00	0.00
Kujam-I	80.87	2.47	2.47	86870.00	101222.20
Kujam-II	157.38	4.18	4.33	150150.00	197828.91
Amtipani	190.95	4.99	3.19	114005.00	135519.46
Chiro-Kukud	152.57	1.41	1.21	40415.00	94780.30
Orsa Bauxite Mines	196.36	0.00	0.00	0.00	0.00
Hisri New	14.55	0.73	0.54	36358.00	25610.00
Bhusar	65.31	0.00	0.00	0.00	0.00
Bagru	75.41	0.00	0.00	0.00	0.00
Minerals & Minerals Limited					
Pakhar Buxite Mines	109.51	3.45	4.06	154100.00	196818.79
Pakhar Buxite Mines	15.58	0.00	0.00	0.00	0.00
Bimarla Bauxite Mines	134.37	2.71	1.25	52675.00	63084.44

Monitored water level (FY 2016-17)

Location (Mines)	Elevation (Mtr)	Well type	Monsoon		Post Monsoon	
			Inside ML	Outside ML	Inside ML	Outside ML
Bagru Plateau (Hisri new, Bagru & Bhusar)	905	Open Well		21.32		22.70
	910	Open Well		24.38		24.56
	915	Open Well		29.00		28.43
	903	Open Well		22.81		33.15
	909	Open Well		20.15		28.72
	1000	Open Well		24.93		22.65
Pakhar Gr. Of Mines (115.13, 109.507, 15.58, 8.0)	1083	Hand Pump	35.35		31.60	
Sherengdag Plateau (Serangdag 155.81 ha, Sherengdag 140.06 Ha, Jalim & Sanai)	1027	Open Well		25.80		28.40
	1094	Hand Pump	41.74		39.55	
	1081	Hand Pump	39.60		31.30	
	1055	Hand Pump	33.00		27.50	
	1066	Hand Pump	27.75		26.25	
Gurdan	1045	Hand Pump	29.30		27.70	
	1061	Hand Pump	28.30		24.90	
	1059	Hand Pump	38.10		36.15	
	1075	Hand Pump	27.90		26.75	
	1075	Hand Pump	28.30		29.30	
Kujam I, Kujam II & Amtipani Mines	1040	Open Well		33.90		21.85
	1041	Open Well		33.65		24.80
	1064	Hand Pump	31.50		28.60	
	1052	Hand Pump	22.35			21.05
Chiro Kukud	1148	Hand Pump	33.40		28.30	
	1151	Hand Pump	37.60		31.80	
	1084	Hand Pump	34.20		33.15	

FOREST PROTECTION PLAN

Considering the various measures proposed above, there would be requirement of various types of equipment and improvement in the infrastructures in forests. The proposed forest protection plan is related to the strengthening of forest department. Considering these facts various activities which are necessary for the forest protection plan are described in the following paragraphs:

- For the improvement of vigilance and measures to check poaching, check posts and watch towers will be needed. In order to strengthen the working capacity the officers of the State Forest/Wildlife Department they must be provided with necessary equipment that would increase their capability and efficiency. Equipment such as camera, wireless, binoculars and other minor equipments (altimeter, spot-scope, search lights, sleeping bags, and health kits etc)
- The construction of inspection paths for more effective and meaningful patrolling of the staff should be undertaken.
- Improvement of vigilance by procurement of field vehicles and motorbikes
- Creation of veterinary facilities and rescue camps for healthcare of wild animals and for controlling diseases. For this purpose it is essential to maintain a stock of medicines in addition to setting up of a *mobile-rescue-cum-publicity-van*.
- Provision of fire lines within critical areas to protect the forest from accidental fires.

Safeguard Measures

- Strict restrictions shall be imposed on the workers at project sites to ensure that they would not harvest any species/produce from the natural forests and cause any danger or harm to the animals and birds in the wild.
- Minimum levels of noise during mining activities shall be maintained and no activities shall be carried out at night.
- To avoid the deterioration of water quality and release of pollutants into the water courses, project authorities would provide proper sanitation facilities and garbage disposal bins to the workers areas.

- The interference of human population would be kept to a minimum in the adjacent forested areas and it would be ensured that the contractors do not set up labour colonies in the vicinity of forests and wilderness areas.
- The project authorities will be bound by the rules and regulations of the Wildlife Protection Acts (1972), Biological Diversity Act (2002), Forest Act (1980), Environment Protection Act (1986), guidelines of State Biodiversity Conservation Strategy Action Plans (SBCSAP) for the preservation of habitats and protection of wild animals.

Apart from the above the management will also comply with the following conditions given by forest department while give permission for transportation of trucks carrying Bauxite Ore

1. A permanent pillar will be established within in the mine lease area at 7.5m from the forest boundary
2. No mining activity will be carried out in forest area
3. Maintenance of the forest road shall be carried out by the company at their own cost in presence (supervision) of forest department employees
4. Company shall ensure necessary air and noise pollution control measures
5. Daily water sprinkling shall be carried out on the forest road
6. Transportation through forest road shall be closed during night time
7. Company and its employees will cooperate in safety and management of forest and wildlife and will not disturb / harm the forest and wildlife
8. Company shall cooperate in controlling forest fire
9. Social developmental activities shall be carried out in surroundings of the lease area
10. Every vehicle used for transportation of bauxite through this forest road shall be registered for travelling on the forest road from the forest department