



Ref No: HIL/LHD/JP (M)/MoEF/1247

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 Serengdag Bauxite Mining (140.07 Ha) project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April'16-Sep'16.

Ref: **Environmental Clearance letter no J-11015/243/2005-IA II (M) dated 23th June 2006**

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Serengdag (140.07 Ha)** Bauxite Mining project of M/s Hindalco located in Gumla, Jharkhand for the period **April'16-Sep'16**.

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES 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

SERENDAG BAUXITE MINES (140.07 Ha)

Period: April'16-Sep'16

MoEF Environment Clearance ref: No. J-11015/243/2005-IA.II(M) dated 23 June'06

Sl No	Conditions	Compliance Status
Specific Conditions		
1	All the conditions stipulated by the State Pollution Control Board in their consent to establish should be effectively implemented.	Implementations of the stipulated conditions are fulfilled.
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.	This provision was taken care during lease renewal, the said permission was granted by competent authority D.C. office Ranchi (Documents already submitted)
3	Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 62.18 ha forestland shall be obtained before starting mining operation in that area	Mining is being carried out in non-forest area only.
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. It has been identified to use the same for reclamation and rehabilitation at appropriate time.
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.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
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 de-silted 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	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.

	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.	
7	Plantation shall be raised in an area of 37.1 ha including a green belt of adequate width by planting the native species around the ML area, roads, 06 dump sites etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
8	The mining operations shall not intersect groundwater table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.	Mining operation was confined within shallow depth in past.As per the study conducted by authorized agency [Centre for Ground Water Studies, Kolkata (WB)] during Oct'05; the ground water level is in the range of 80 – 100 m from ground level. Precaution will be taken post resumption of mining operation to ensure that at no point of time mining operation should intersect ground water table.
9	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.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
10	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.	Regular monitoring is being carried out by recognized agency. Report Annexed.
11	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. We will not use any water from natural water bodies without permission.
12	The project proponent shall monitor the spring discharge on long term basis (at lease one major spring) both in terms of quantity and quality of water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office	There is no spring within the mining lease area.

	located at Bhubneshwar.	
13	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.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity..
14	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.	Mined out pit will be converted into water reservoir, plantation will be carried out to stabilize the terraced.
15	Drills should either be operated with dust extractors or should be equipped with water injection system	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress 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 vibrations and to arrest fly rocks and boulders should be implemented	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
17	Consent to operate should be obtained from SPCB prior to start of production of 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 post obtaining consent to operate.
18	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	The sewage water from domestic uses is collected in Soak Pits. There is no residential accommodation in the mine area hence ETP is not required.
19	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered flora and fauna spotted in the study area. Action plan for conservation of endangered 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.	No endangered species of Flora and Fauna has been reported in the project area. Suitable conservation measures to protect endangered flora & fauna implemented in past. <ol style="list-style-type: none"> 1. Permanent pillars are established within the mine lease area at 7.5m from the forest boundary. 2. Maintenance of the forest road 3. Ensured necessary air and noise pollution control measures. 4. Daily water sprinkling is being carried out on the forest road

		5. Transportation done only in day time The same will continue post resumption of mining activity.
20	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 prepared & 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.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress 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'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
3	Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	Monitoring is being done. AAQ monitoring report attached.
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 Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.	Monitoring is being done. AAQ monitoring report attached.
5	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.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity. AAQ monitoring report attached.

6	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.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
7	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
8	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.	Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO. This provision will be complied post resumption of mining as complied in past with the progress of mining activity.
9	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization	Already formed and intimated. (Annexure)
10	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. Mines is discontinued since Sep'14 due to second renewal case as per directive by DMO.
11	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.	Statement of Budgetary provision & actual expenses for environmental protection measure is submitted. (Annexure).
12	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 sl. No. 10.
13	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s)	Agreed

	of the Regional Office by furnishing the requisite data / information / monitoring reports.	
14	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
15	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.
16	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar.	Complied. (Documents already submitted)



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Mahabal Enviro Engineers Pvt. Ltd.

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

SHERENG DAG PLATEAU- ENVIRONMENTAL MONITORING REPORT

APRIL TO JUNE 2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

CONTENT

	LOCATION
	AMBIENT AIR QUALITY
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2	Sherengdag Plateau- Jalim & Sanai Mines Pit
3	Sherengdag Plateau-Sherengdag A Mines Pit
4	Sherengdag Plateau-Sherengdag B Mines Pit
5	Sherengdag Plateau- Jalim & Sanai Village
6	Sherengdag Plateau-Sherengdag B Village
	NOISE LEVEL
1	Near Weigh Bridge
2	Shrengdag A Mines Pit
	SPOT NOISE LEVEL
1	Near Poclain Shrengdag Mines (155.81 ha.)
	DRINKING WATER
1	Sherengdag Mines Office
	SOIL ANALYSIS
1	Sherengdag A Mines Pit



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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no: : MEEPL/ JULY062/2016-17	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: Sherengdag Plateau - <i>Sherengdag Weight Bridge</i>	
Sample collected on: 22.06.2016	
Received: 26.06.2016	
Registered: 26.06.2016	
Test Start/End Date: 26.06.2016/29.06.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - <i>Sherengdag Weight Bridge</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	51.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	38.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	24.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	30.1
05.	Ammonia (NH ₃)	µg/m ³	400	10.5
06.	Ozone (O ₃)	µg/m ³	180	12.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.1
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	ng/m ³	20	5.2
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no: : MEEPL/ JULY063/2016-17	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: Sherengdag Plateau - <i>Jalim & Sanai Mines Pit</i>	
Sample collected on: 22.06.2016	
Received: 26.06.2016	
Registered: 26.06.2016	
Test Start/End Date: 26.06.2016/29.06.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - <i>Jalim & Sanai Mines Pit</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 μm) PM ₁₀	$\mu\text{g}/\text{m}^3$	100	45.9
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	$\mu\text{g}/\text{m}^3$	60	33.5
03.	Sulphur Dioxide (SO ₂)	$\mu\text{g}/\text{m}^3$	80	23.5
04.	Nitrogen Dioxide (NO ₂)	$\mu\text{g}/\text{m}^3$	80	31.5
05.	Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	400	11.9
06.	Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	180	13.5
07.	Carbon Monoxide (CO)	mg/m^3	02	0.1
08.	Lead (Pb)	$\mu\text{g}/\text{m}^3$	1.0	0.01
09.	Nickel (Ni)	ng/m^3	20	5.2
10.	Arsenic (As)	ng/m^3	06	2.3
11.	Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	05	2.1
12.	Benzo (a) Pyrene	$\mu\text{g}/\text{m}^3$	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no: : MEEPL/ JULY064/2016-17	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: Sherengdag Plateau - <i>Sherengdag A Mines Pit</i>	
Sample collected on: 23.06.2016	
Received: 27.06.2016	
Registered: 27.06.2016	
Test Start/End Date: 27.06.2016/30.06.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - <i>Sherengdag A Mines Pit</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	42.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	25.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	31.5
05.	Ammonia (NH ₃)	µg/m ³	400	12.1
06.	Ozone (O ₃)	µg/m ³	180	11.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.1
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	5.3
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.5

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APRIL-JUNE 2016

Report no: : MEEPL/ JULY065/2016-17	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: Sherengdag Plateau-Sherengdag B Mines Pit	
Sample collected on: 23.06.2016	
Received: 27.06.2016	
Registered: 27.06.2016	
Test Start/End Date: 27.06.2016/30.06.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - Sherengdag B Mines Pit				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	39.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31.1
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	24.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	29.8
05.	Ammonia (NH ₃)	µg/m ³	400	13.1
06.	Ozone (O ₃)	µg/m ³	180	12.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.4
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	5.2
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.4

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Report no: : MEEPL/ JULY067/2016-17	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: Sherengdag Plateau - Jalim & Sanai Village	
Sample collected on: 23.06.2016	
Received: 27.06.2016	
Registered: 27.06.2016	
Test Start/End Date: 27.06.2016/30.06.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau- Jalim & Sanai Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	32.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	27.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	23.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	32.5
05.	Ammonia (NH ₃)	µg/m ³	400	14.5
06.	Ozone (O ₃)	µg/m ³	180	16.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.3
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	5.2
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Report no: : MEEPL/ JULY068/2016-17	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: Sherengdag Plateau- Sherengdag B Village	
Sample collected on: 23.06.2016	
Received: 27.06.2016	
Registered: 27.06.2016	
Test Start/End Date: 27.06.2016/30.06.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau- Sherengdag B Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	33.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	25.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	35.1
05.	Ammonia (NH ₃)	µg/m ³	400	16.2
06.	Ozone (O ₃)	µg/m ³	180	19.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.4
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	ng/m ³	20	5.3
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no: : MEEPL/ JULY069/2016-17

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: 23.06.2016

Analyse Date: 23.06.2016

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Near Weigh Bridge - Shrengdag Plateau	dB (A) L_{eq}	75	53.6	70	49.0	23/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

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SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no. : MEEPL/ JULY070/2016-17	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: 22.06.2016	
Analyse Date: 22.06.2016	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Sherengdag A Mines Pit	dB (A) Leq	75	66.2	70	50.5	22/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no. : MEEPL/ JULY071/2016-17	Date: 18 th 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 Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 23.06.2016	
Analyse Date: 23.06.2016	

Location/Identification	Unit	Limit (day)	Result	Dates
Sherengdag Mines (155.81 ha.) Sherengdag Plateau Near Poclairn	dB (A) Leq	75	68.1	23/06/2016

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no. : MEEPL/ JULY072/2016-17	Date: 18th 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: Sherengdag Mines Office	
Sample collected on: 22.06.2016	
Quantity: 5 L X 2 No. PVC Can	
Received: 23.06.2016	
Registered: 23.06.2016	
Test Start/End Date: 23.06.2016/26.06.2016	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	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	0.1	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-CI-G, 4-69
7	Total Dissolved Solids	mg/l	38.5	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	52.1	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	65.2	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	18.3	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	5.2	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Continuation Sheet
MEEPL/ JULY072/2016-17

Report no: : MEEPL/ JULY072/2016-17			Date: 18 th July, 2016		
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO ₃)	mg/l	1.29	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.02	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.03	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	22	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.1	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	0.10	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	0.03 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	0.02	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	<0.01	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-C.C & 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 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd Ed. 2012, 6440, 6-93
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





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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Continuation Sheet
MEEPL/ JULY074/2016-17

Report no: : MEEPL/ JULY072/2016-17					Date: 18 th July, 2016
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Colliforms	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 (Lindance)	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	ε- 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	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.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Environmental Monitoring report

APRIL-JUNE 2016

Report no : MEEPL/ JULY073/2016-17	Date: 18 th July, 2016
Sample Description: Soil Analysis	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type:	
Marks on Sample: Location: Sherendag A Mines Pit	
Sample collected on: 23.06.2016	
Received: 26.06.2016	
Registered: 26.06.2016	
Test Start/End Date: 26.06.2016/30.06.2016	

PARAMETER		UNIT	Location
Colour	--	-	Gray
Texture	--	-	Loamy Sand
Bulk Density	--	gm/cm ³	1.0
Water Holding Capacity	--	%	20.1
pH	--	-	5.20
Electrical Conductivity	--	µs/cm	125
Organic Carbon	--	%	0.53
Organic Matter	--	%	0.91
Available Nitrogen	--	mg/kg	120
Available Phosphorus	--	mg/kg	23.5
Available Potassium	--	mg/kg	283
Exchangeable Calcium	Ca	meq/100gm	35.2
Exchangeable Magnesium	Mg	meq/100gm	1.89
Exchangeable Sodium	Na	meq/100gm	1.92
Exchangeable Potassium	K	meq/100gm	1.92
Total Exchangeable Bases		meq/100gm	34.5
Manganese	Mn	mg/kg	0.69
Arsenic	As	mg/kg	4.50
Silica	SiO ₂	%	70.2
Aluminum	Al ₂ O ₃	%	4.12
Iron	Fe ₂ O ₃	%	50.2
Calcium	CaO	%	9.90
Magnesium	MgO	%	1.23
Sodium	Na ₂ O	%	0.80
Potassium	K ₂ O	%	0.49
Sulphate	SO ₄	%	0.85

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
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SHERENDAG PLATEAU- ENVIRONMENTAL MONITORING REPORT

JULY TO SEPTEMBER 2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

CONTENT

	LOCATION
	AMBIENT AIR QUALITY
1	Sherengdag Plateau-Sherengdag Weight Bridge
2	Sherengdag Plateau- Jalim & Sanai Mines Pit
3	Sherengdag Plateau-Sherengdag A Mines Pit
4	Sherengdag Plateau-Sherengdag B Mines Pit
5	Sherengdag Plateau- Nav Prathmik Vidyalay (Dhanka Toli)
6	Sherengdag Plateau-Sherengdag B Village
	NOISE LEVEL
1	Near Weigh Bridge
2	Shrengdag A Mines Pit
	SPOT NOISE LEVEL
1	Near Poclain Shrengdag Mines (155.81 ha.)
	DRINKING WATER
1	Sherengdag Mines Office



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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0137/2016-17	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: Sherengdag Plateau - <i>Sherengdag Weight Bridge</i>	
Sample collected on: 27.09.2016	
Received: 28.09.2016	
Registered: 28.09.2016	
Test Start/End Date: 28.09.2016/30.09.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - <i>Sherengdag Weight Bridge</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	64.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	27.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	34.9
05.	Ammonia (NH ₃)	µg/m ³	400	13.7
06.	Ozone (O ₃)	µg/m ³	180	17.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.1
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	4.7
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0138/2016-17	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: Sherengdag Plateau - <i>Jalim & Sanai Mines Pit</i>	
Sample collected on: 27.09.2016	
Received: 28.09.2016	
Registered: 28.09.2016	
Test Start/End Date: 28.09.2016/30.09.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - <i>Jalim & Sanai Mines Pit</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	49.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	25.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	32.4
05.	Ammonia (NH ₃)	µg/m ³	400	12.5
06.	Ozone (O ₃)	µg/m ³	180	16.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.1
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	4.3
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0139/2016-17	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: Sherengdag Plateau - <i>Sherengdag A Mines Pit</i>	
Sample collected on: 27.09.2016	
Received: 28.09.2016	
Registered: 28.09.2016	
Test Start/End Date: 28.09.2016/30.09.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - <i>Sherengdag A Mines Pit</i>				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 μm) PM ₁₀	$\mu\text{g}/\text{m}^3$	100	50.2
02.	Particulate Matter (size less than 2.5 μm) PM _{2.5}	$\mu\text{g}/\text{m}^3$	60	34.6
03.	Sulphur Dioxide (SO ₂)	$\mu\text{g}/\text{m}^3$	80	22.9
04.	Nitrogen Dioxide (NO ₂)	$\mu\text{g}/\text{m}^3$	80	33.7
05.	Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	400	14.2
06.	Ozone (O ₃)	$\mu\text{g}/\text{m}^3$	180	15.9
07.	Carbon Monoxide (CO)	mg/m^3	02	0.1
08.	Lead (Pb)	$\mu\text{g}/\text{m}^3$	1.0	0.02
09.	Nickel (Ni)	ng/m^3	20	4.1
10.	Arsenic (As)	ng/m^3	06	2.2
11.	Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	05	2.3
12.	Benzo (a) Pyrene	$\mu\text{g}/\text{m}^3$	01	0.4

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0140/2016-17	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: Sherengdag Plateau-Sherengdag B Mines Pit	
Sample collected on: 27.09.2016	
Received: 28.09.2016	
Registered: 28.09.2016	
Test Start/End Date: 28.09.2016/30.09.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau - Sherengdag B Mines Pit				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	46.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	18.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	16.4
05.	Ammonia (NH ₃)	µg/m ³	400	13.5
06.	Ozone (O ₃)	µg/m ³	180	16.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.3
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	4.7
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0141/2016-17	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: Sherengdag Plateau – Nav Prathmik Vidyalay (Dhanka Toli)	
Sample collected on: 27.09.2016	
Received: 28.09.2016	
Registered: 28.09.2016	
Test Start/End Date: 28.09.2016/30.09.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau- Nav Prathmik Vidyalay (Dhanka Toli)

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	37.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	19.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	22.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	34.7
05.	Ammonia (NH ₃)	µg/m ³	400	13.1
06.	Ozone (O ₃)	µg/m ³	180	16.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.3
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	ng/m ³	20	4.9
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0142/2016-17	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: Sherengdag Plateau- Sherengdag B Village	
Sample collected on: 27.09.2016	
Received: 28.09.2016	
Registered: 28.09.2016	
Test Start/End Date: 28.09.2016/30.09.2016	

LOCATION / IDENTIFICATION: Sherengdag Plateau- Sherengdag B Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	41.0
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	24.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	18.2
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	31.7
05.	Ammonia (NH ₃)	µg/m ³	400	12.2
06.	Ozone (O ₃)	µg/m ³	180	16.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.4
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	3.4
10.	Arsenic (As)	ng/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.3

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0143/2016-17	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: 27.09.2016	
Analyse Date: 27.09.2016	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Near Weigh Bridge - Shrengdag Plateau	dB (A) Leq	75	55.9	70	46.2	27/09/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0144/2016-17	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: 27.09.2016	
Analyse Date: 27.09.2016	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result	Dates
Sherengdag A Mines Pit	dB (A) Leq	75	69.5	70	52.7	27/09/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Report no: : MEEPL/ OCT0145/2016-17	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: 28.09.2016	
Analyse Date: 28.09.2016	

Location/Identification	Unit	Limit (day)	Result	Dates
Sherengdag Mines (155.81 ha.) Sherengdag Plateau Near Poclairn	dB (A) Leq	75	70.4	28/09/2016

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Environmental Monitoring Report

JULY - SEPTEMBER 2016

Report no. : MEEPL/ OCT0146/2016-17	Date: 31st 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: Sherengdag Mines Office	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 27.09.2016	
Received: 27.09.2016	
Registered: 27.09.2016	
Test Start/End Date: 28.09.2016/30.09.2016	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	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	0.1	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.2	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	73.4	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	59.2	200 max	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	71.8	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	20.7	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	4.9	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Continuation Sheet
MEEPL/OCT0146/2016-17

Report no: : MEEPL/ OCT0146/2016-17				Date: 31 st October, 2016	
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO ₃)	mg/l	1.18	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.02	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.03	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	19	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.0	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	0.10	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	0.03 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	0.01	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	<0.01	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-C.C & 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 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
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-S2-C 4-175 & F 4-178





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Hindalco Industries : Environmental Monitoring Report

JULY – SEPTEMBER 2016

Continuation Sheet
MEEPL/OCT0146/2016-17

Report no: : MEEPL/ OCT0146/2016-17			Date: 31 st October, 2016		
Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Colliforms	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 (Lindance)	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	Σ-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	Methoysl 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



Date: 05.09.16

Office Order

Environmental Cell has been re-constituted at Shrengdag Bauxite Mines (Area 140.06 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. Amar Bharti-Mines Manager (Coordinator)
2. Mr. Navnit Kr. Jaiswal-Mines Foreman (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 (feet)	Elevation (M)	Well type	Monsoon (July-Sep)		Post Monsoon (November)	
				Inside ML	Outside ML	Inside ML	Outside ML
Sherengdag Plateau (Serengdag 155.81 ha, Sherengdag 140.06 Ha, Jalim & Sanai)	3370	1027	Open Well		25.80		28.40
	3587	1094	Hand Pump	41.74		39.55	
	3546	1081	Hand Pump	39.60		31.30	
	3459	1055	Hand Pump	33.00		27.50	
	3495	1066	Hand Pump	27.75		26.25	

B. Jahanam