



HIL/LHD/ENV/MoEF/88

Date: 24.05.2022

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 Gurdari (584.19 ha) Bauxite Mining project of M/s Hindalco Industries Limited located in Gumla, Jharkhand for the period October'21 to March'22.

Ref: Environmental Clearance letter no J-11015/136/2006-IA II (M) dated 7th February 2007

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Gurdari (584.19 ha) Bauxite Mining project of M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period October'21 to March'22.

The lease detail is as below.

Lease area (ha)	Production Capacity (MT)	Lease Period
584.19	325000	23.03.1985 to 22.03.2035

Hope you will find the same in order.

Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

(Basudev Gangopadhyay)
Sr GM (Geology & Environment)

Enclosure: - As Above

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Name of the Project : Gurdari Bauxite Mine (584.19 ha)
M/s Hindalco Industries Ltd

Environment Clearance No & date : J-11015/136/2006-IA.II (M), dated 7.2.2007

Period of compliance Report : From 1st October 2021 to 31st March 2022

S No	Conditions	Compliance Status
Specific Conditions		
1	All the conditions stipulated by SPCB in their NOC shall be effectively implemented.	Implementations of stipulated conditions in NOC are fulfilled post which consent to operate has been granted by SPCB from time to time. The existing consent to operate is valid up to 31.03.2024. Productions of bauxite are within limits specified in consent to operate.
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.	Land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Land Owner) for 20 years with permission of State Govt with provision of returning the land as per norms set by D.C. The compensation and facilities are being provided as per norms set in agreement. Thus, land acquisition has the approval of State Government.
3	The exploration shall be completed within 2.5 years and thereafter the proponent shall come up with a firm proposal for mining, based on the estimated reserves. The reclamation plan, post mine land use and progressive greenbelt development plan shall also be prepared and submitted with the revised proposal.	Mining is in progress. Required exploration is already done. Reserve and resource estimated on basis of explored bore holes in area. Revised reclamation plan, post mine land use, green belt development plan submitted and approved by the IBM. Review of Mining Plan along with progressive mine closure plan (current mining scheme/mining plan) is valid up to 31.03.2024.
4	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	Shallow depth mining is being carried out up to maximum depth of 20.00 mts. Hence there will be no intersecting of the ground water table due to mining activities. In future also, working zone

	below water table.	will be restricted to above ground water table. We undertake that no mining is/was carried out below ground water table and the same status will be maintain in future also.
5	Topsoil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas.	Topsoil is being stacked temporally properly with proper slope as and when required. Sequential backfilling and reclamation of mined out area are being exercised for which topsoil is being spread on backfilled area for reclamation of area.
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-month basis.	Overburden and waste rock are being used for back filling. Data pertaining to backfilling is enclosed as Annexure. 4 Monitoring and management of rehabilitated areas is being done through effective supervision. No external dump exists as on date.
7	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. 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.	No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary. Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable. Sump of adequate capacity is being provided and maintained as required.
8	Plantation shall be raised in an area of 78.44 ha 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	Progressive plantation is being carried out on regular basis with progress of mining activity in order to create a green belt of adequate width around the ML area.

	per ha.	During FY 2021-22, total 7150 nos. saplings were planted on reclaimed area. Total 15.72 ha areas have been planted till date. In addition to this agricultural activity is going on reclaimed land as per the consent from the land owners. Rest to be complied during project period.
9	The project authority should implement suitable conservation measures to augment ground water resources in area in consultation with Regional Director, Central Ground Water Board.	Suitable conservation measures to augment ground water have been taken as directed in NOC granted by CGWB e.g. Constructing water harvesting pond etc.
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.	The mining operation is not intersecting ground water table. We are not using ground water for any mining purpose. Piezometer has been installed for monitoring of ground water level. Water quality and water level report are attached herewith as Annexure 1.
11	Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies.	Rainwater harvested during rainy season is being used for sprinkling on haul roads and raising plantation. We are not using any water from natural streams/ ground water for mining. We have already obtained NOC for extraction of ground water from CGWB
12	Water monitoring both for quality and quantity shall be carried out at four locations namely one spring and three streams. Six monthly report should be submitted to the Ministry of Environment and Forest and its Regional Office located at Bhubneshwar.	Spring and Stream water are being monitored. Analysis report is attached as Annexure 1.
13	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.	To keep vehicular emissions in control, company vehicles are periodically checked and repaired. The vehicles are being covered with tarpaulin while transportation of mineral.
14	Drills should either be operated with dust extractors or should be equipped with water injection system.	Wet drilling is in practice.

15	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.	Blasting time is fixed during Lunch Time i.e. 1.00 PM-2.00 PM. We have control blasting permission. Controlled blasting method is in practice. Ground vibration study has been conducted by IIT, Kharagpur. Efforts and mitigative measures are being taken to mitigate impact of blasting.
16	Consent to operate should be obtained from SPCB prior to start of enhanced production from the mine.	There is no proposal for enhancement of production.
17	Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.	There is an Effluent treatment mechanism (Oil-grease trap) are available, the used oil in workshop being collected and stored in earmarked area and is being disposed through authorized vendor. The sewage water from domestic uses is being collected through individual Septic Tank and Soak Pits.
18	The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered fauna such as Indian Python, <i>Presbytis phayrei</i> , <i>Melurus ursinus</i> 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.	We have prepared Wildlife Conservation Plan in consultation with State Forest Department and also obtained approval letter from Principal Chief Conservator of Forest, Wildlife & Chief Wildlife Warden, Jharkhand for conservation and protection of flora and fauna in the core and buffer zone for Gurdari Bauxite Mines. Approval letter (Memo No 1862, dated 02.12.2021) has been submitted to your good office on 21.02.2022.
19	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 along with mining scheme has been approved by IBM. Final Mine Closure plan (part) has been approved by IBM. Final Mine closure plan for balance area will be prepared in due time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same. Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.

General Conditions:

S 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.	Noted.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Calendar plan including excavation, quantum of mineral bauxite and waste is being done as per IBM approved mining scheme / mining plan. Report is attached as Annexure 4.
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.	We have already established four ambient air quality monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as Annexure 1.
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.	Being done. Monitoring Reports for reporting period is enclosed in Annexure-1.
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.	Three nos. of water tanker have been provided for sprinkling of water on haul roads and active mining areas to arrest fugitive dust. Water spraying at loading, unloading, etc is also being done properly.
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.	Noise monitoring is being done regularly. Workers engaged in operation of HEMMs, etc have also been provided with PPEs such as ear plug and earmuffs. Monitoring of noise level is being conducted at various locations of the work zone area. Report is attached as Annexure 1

7	Industrial wastewater (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 19 th May, 1993 and 31 st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no effluent discharge from Mine. We are not discharging any wastewater outside mine lease area. Oil and grease trap has installed at workshop in mine lease area.
8	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. 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.	Complied. Use of Personal Protective Equipment (PPE) by individuals is being ensured. All mine workers are being regularly and periodically sent to our own hospital for health checkup/ Occupational Health check up for any contraction of diseases due to exposure in dusty and noisy areas. Training on safety, health and environmental aspects of mining is being regularly imparted through VT training centre and also through various other training programmes conducted by the State Government, recognized agencies, etc.
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.	Separate Environmental Management Cell (EMC) has been constituted and is functioning effectively. Copy is enclosed as Annexure 3.
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.	This is an operating mine and hence provision related to financial closure is not applicable. Now Regional office is at Ranchi
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 actual expenses for the month October'21 to March'22 for environmental protection measure is enclosed as Annexure-2. Now Regional office is at Ranchi.
12	The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Agreed.

13	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.	Complied. Copy submitted to regional office.
14	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.	Displayed.
15	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 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. Copies, of the advertisement made in the local newspapers, have already been submitted to the Regional Office Vide letter no HIL/GMO(M)/ENV/140 Dated 23.04.2007. Now Regional office is at Ranchi



Signature

Gurdari Bauxite Mines
Hindalco Industries Limited



RECLAIMED LAND



PADDY CULTIVATION ON RECLAIMED LAND



PLANTATION



PLANTATION OF LAST YAER



RAINWATER HARVESTING POND



WATER SPRINKLING ON HAUL ROAD



HEALTH CAMP



TARPULIN COVER OF BAUXITE TRUCKS



Eco Ventures Pvt. Ltd.

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Mahabal Enviro Engineers Pvt. Ltd.

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

GURDARI BAUXITE MINE ENVIRONMENTAL MONITORING REPORT

OCTOBER 2021

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

CONTENT

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2	Near Chathasari Village
3	Near Shakhupani Village
4	Near Pakri Gada Village
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D.	AMBIENT NOISE
E.	SPOT NOISE
F.	SPRING WATER QUALITY
G.	DRINKING WATER ANALYSIS
H.	STREAM WATER – UP STREAM & DOWN STREAM
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2	Koel River





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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No.: MEEPL/NOV/0258/2021-22	Date: 15 th November, 2021
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: Entrance Gate / Near Mine Office	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Entrance Gate / Near Mine Office				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	77.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	38.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	5.7
06.	Ozone (O ₃)	µg/m ³	180	9.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.06
09.	Nickel (Ni)	µg/m ³	20	2.4
10.	Arsenic (As)	µg/m ³	06	2.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No.: MEEPL/NOV/0259/2021-22	Date: 15 th November, 2021
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: <i>Near Mine Weigh Bridge</i>	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Near Mine Weigh Bridge					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration	
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	88.5	
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	45.7	
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.9	
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.1	
05.	Ammonia (NH ₃)	µg/m ³	400	5.8	
06.	Ozone (O ₃)	µg/m ³	180	10.4	
07.	Carbon Monoxide (CO)	mg/m ³	02	0.44	
08.	Lead (Pb)	µg/m ³	1.0	0.05	
09.	Nickel (Ni)	µg/m ³	20	2.4	
10.	Arsenic (As)	µg/m ³	06	2.9	
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.8	
12.	Benzo (a) Pyrene	µg/m ³	01	0.35	

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No.: MEEPL/NOV/0260/2021-22	Date: 15 th November, 2021
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: Near Kathuwapani Pit 23	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Near Kathuwapani Pit 23				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	81.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	40.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	8.9
05.	Ammonia (NH ₃)	µg/m ³	400	5.4
06.	Ozone (O ₃)	µg/m ³	180	9.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.43
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	µg/m ³	20	2.7
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.26

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0261/2021-22	Date: 15 th November, 2021
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: Near Ambakana Pit / NKCP Camp	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Near Ambakana Pit / NKCP Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	86.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	42.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.8
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	6.1
06.	Ozone (O ₃)	µg/m ³	180	9.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.9
10.	Arsenic (As)	µg/m ³	06	2.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.5

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0262/2021-22	Date: 15 th November, 2021
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: Near Dipa Kujam Village	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.9
05.	Ammonia (NH ₃)	µg/m ³	400	3.7
06.	Ozone (O ₃)	µg/m ³	180	10.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	µg/m ³	20	2.8
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

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Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0263/2021-22	Date: 15 th November, 2021
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: Near Chathasari Village	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	63.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.8
05.	Ammonia (NH ₃)	µg/m ³	400	3.1
06.	Ozone (O ₃)	µg/m ³	180	8.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.7
10.	Arsenic (As)	µg/m ³	06	2.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.34

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0264/2021-22	Date: 15 th November, 2021
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: <i>Near Shakhuapani Village</i>	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	56.6
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	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	9.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.5
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0265/2021-22	Date: 15 th November, 2021
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: <i>Near Pakri Gada Village</i>	
Sample collected on: 23.10.2021	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	31.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	8.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.6
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No.: MEEPL/NOV/0266/2021-22			Date: 15 th November, 2021		
Sample described by customer: Workshop Effluent Water					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: Gurdari Bauxite Mines					
Quantity: 4 liters.					
Sample collected on: 23.10.2021					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	8.4	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	75	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	7.1	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	29	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003, Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1461	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.5	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	7.2	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.3	mg/l	3
10.	Temperature		17.5	°C	Shall not exceed 5°C above the receiving water temperature

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No.: MEEPL/NOV/0267/2021-22	Date: 15 th November, 2021
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: 23.10.2021	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Near Mine Office	dB (A) L _{eq}	75	68.6	70	57.2

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No.: MEEPL/NOV/0268/2021-22	Date: 15 th November, 2021
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: 23.10.2021	

Location/Identification	Unit	Limit (day)	Result
Gurdari Mines (584.19 ha.) Poclain at Haralagda Pit	dB (A) L_{eq}	75	72.7

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0269/2021-22	Date: 15 th November, 2021
Sample described by customer : SPRING WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: SPRING WATER	
Marks on Sample: Location: Gurdari Bauxite Mines	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 23.10.2021	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	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	0.24	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	6.9	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	185	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	22	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	25	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	21	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
11	Sulphate (as SO ₄)	mg/l	20.1	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.18	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	5.0	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84



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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Continuation Sheet
MEEPL/NOV/0269/2021-22

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.11	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.9	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.07	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CNC & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7-8	APHA 20 th ED. Method 4500-o.g.

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

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0270/2021-22	Date: 15 th November, 2021
Sample described by customer : DRINKING WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER	
Marks on Sample: Location: Gurdari Bauxite Mines – Drinking Water	
Sample collected on: 23.10.2021	

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	0.2	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	157	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	31.3	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	26.5	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	5.7	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	4.2	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Continuation Sheet MEEPL/NOV/0270/2021-22

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO ₃)	mg/l	1.3	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.14	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	26	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.6	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	0.15	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, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	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-CNC & 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 : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Continuation Sheet
MEEPL/NOV/0270/2021-22

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9-76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	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	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0271/2021-22	Date: 15 th November, 2021
Sample described by customer : STREAM WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: STREAM WATER	
Marks on Sample: Location: Tangradh Nala	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 23.10.2021	

Sl. No.	Parameters	Unit	Result UP STREAM	Result DOWN STREAM	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	<2	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.21	0.21	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.9	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	371	387	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	35	37	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	41	41	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	33	35	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
11	Sulphate (as SO ₄)	mg/l	28.5	27.9	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.21	0.21	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.6	6.5	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84



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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Continuation Sheet MEEPL/NOV/0271/2021-22

Sl. No.	Parameters	Unit	Result UP STREAM	Result DOWN STREAM	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.13	0.15	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.5	8.6	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.07	0.07	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
24	Mercury (as Hg)	mg/l	N.D	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	N.D	0.05 max	APHA 22 nd Ed. 2012, 4500-CNC & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7.3	7-8	APHA 20 th ED. Method 4500-og.

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Report No: MEEPL/NOV/0272/2021-22	Date: 15 th November, 2021
Sample described by customer : STREAM WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: STREAM WATER	
Marks on Sample: Location: Koel River	
Quantity: 5 L X 2 No. PVC Can	
Sample collected on: 23.10.2021	

Sl. No.	Parameters	Unit	Result UP STREAM	Result DOWN STREAM	Acceptable Limit (IS 10500:2012)	Method Reference
1	Colour	Hazen	<2	<2	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.25	0.25	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.8	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+ -B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	361	375	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Total hardness (as CaCO ₃)	mg/l	36	36	200 max	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
9	Alkalinity Total (as CaCO ₃)	mg/l	42	44	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
10	Chloride (as Cl)	mg/l	31	31	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
11	Sulphate (as SO ₄)	mg/l	25.6	25.9	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190
12	Boron (as B)	mg/l	0.21	0.21	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
13	Magnesium (as Mg)	mg/l	6.0	6.0	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84



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Hindalco Industries : Gurdari

Environmental Monitoring Report

OCTOBER 2021

Continuation Sheet
MEEPL/NOV/0272/2021-22

Sl. No.	Parameters	Unit	Result UP STREAM	Result DOWN STREAM	Acceptable Limit (IS 10500:2012)	Method Reference
14	Fluoride (as F)	mg/l	0.13	0.13	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
15	Calcium (as Ca)	mg/l	8.5	8.4	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
16	Iron (as Fe)	mg/l	0.08	0.09	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
17	Cadmium (as Cd)	mg/l	N.D	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
18	Chromium Total (as Cr)	mg/l	N.D	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
19	Copper (as Cu)	mg/l	N.D	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
20	Lead (as Pb)	mg/l	N.D	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Zinc (as Zn)	mg/l	0.02	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Arsenic (as As)	mg/l	<0.01	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
23	Selenium (as Se)	mg/l	N.D	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
24	Mercury (as hg)	mg/l	N.D	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
25	Cyanide (as CN)	mg/l	N.D	N.D	0.05 max	APHA 22 nd Ed. 2012, 4500-CNC & 4-39 & 4-44
26	Manganese (as Mn)	mg/l	N.D	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Dissolved Oxygen	mg/l	7.3	7.3	7-8	APHA 20 th ED. Method 4500-og.

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

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GURDARI BAUXITE MINE ENVIRONMENTAL MONITORING REPORT

NOVEMBER 2021

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

CONTENT

LOCATION – GURDARI	
	AMBIENT AIR QUALITY – CORE ZONE
1	Entrance Gate / Near Mine Office
2	Near Mine Weigh Bridge
3	Near Kathuwapani Pit 23
4	Near AmbakanaPit / NKCPCL Camp
	AMBIENT AIR QUALITY – BUFFER ZONE
1	Near Dipa Kujam Village
2	Near Chathasari Village
3	Near Shakhupani Village
4	Near Pakri Gada Village





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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0186/2021-22	Date: 28 th December, 2021
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: Entrance Gate / Near Mine Office	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Entrance Gate / Near Mine Office

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	67.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.9
05.	Ammonia (NH ₃)	µg/m ³	400	5.7
06.	Ozone (O ₃)	µg/m ³	180	6.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.28
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	1.5
10.	Arsenic (As)	µg/m ³	06	0.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.4
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0187/2021-22	Date: 28 th December, 2021
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: Near Mine Weigh Bridge	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Near Mine Weigh Bridge					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration	
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	75.9	
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	38.5	
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	7.3	
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1	
05.	Ammonia (NH ₃)	µg/m ³	400	8.3	
06.	Ozone (O ₃)	µg/m ³	180	7.0	
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35	
08.	Lead (Pb)	µg/m ³	1.0	0.03	
09.	Nickel (Ni)	µg/m ³	20	1.5	
10.	Arsenic (As)	µg/m ³	06	1.7	
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2	
12.	Benzo (a) Pyrene	µg/m ³	01	0.27	

For Mahabal Enviro Engineers Pvt. Ltd.

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SENIOR EXECUTIVE



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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0188/2021-22	Date: 28 th December, 2021
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: Near Kathuwapani Pit 23	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Near Kathuwapani Pit 23

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	67.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	6.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.28
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	1.6
10.	Arsenic (As)	µg/m ³	06	0.93
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.6
12.	Benzo (a) Pyrene	µg/m ³	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0189/2021-22	Date: 28 th December, 2021
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: Near Ambakana Pit / NKCP Camp	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Near Ambakana Pit / NKCP Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	72.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	36.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.2
05.	Ammonia (NH ₃)	µg/m ³	400	7.3
06.	Ozone (O ₃)	µg/m ³	180	6.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	1.9
10.	Arsenic (As)	µg/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0190/2021-22	Date: 28 th December, 2021
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: Near Dipa Kujam Village	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration	
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	61.6	
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.3	
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.8	
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.9	
05.	Ammonia (NH ₃)	µg/m ³	400	3.4	
06.	Ozone (O ₃)	µg/m ³	180	6.1	
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25	
08.	Lead (Pb)	µg/m ³	1.0	0.02	
09.	Nickel (Ni)	µg/m ³	20	1.7	
10.	Arsenic (As)	µg/m ³	06	0.8	
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0	
12.	Benzo (a) Pyrene	µg/m ³	01	0.21	

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0191/2021-22	Date: 28 th December, 2021
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: Near Chathasari Village	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Near Chathasari Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	57.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	28.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.7
05.	Ammonia (NH ₃)	µg/m ³	400	3.0
06.	Ozone (O ₃)	µg/m ³	180	5.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	0.9
10.	Arsenic (As)	µg/m ³	06	1.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.23

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0192/2021-22	Date: 28 th December, 2021
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: <i>Near Shakhuapani Village</i>	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	66.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	29.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.1
05.	Ammonia (NH ₃)	µg/m ³	400	3.6
06.	Ozone (O ₃)	µg/m ³	180	5.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	µg/m ³	20	1.0
10.	Arsenic (As)	µg/m ³	06	0.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

NOVEMBER 2021

Report no: MEEPL/DEC/0193/2021-22	Date: 28 th December, 2021
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: <i>Near Pakri Gada Village</i>	
Sample collected on: 20.11.2021	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.6
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	1.9
05.	Ammonia (NH ₃)	µg/m ³	400	4.3
06.	Ozone (O ₃)	µg/m ³	180	5.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.23
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	1.1
10.	Arsenic (As)	µg/m ³	06	0.84
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.24

For Mahabal Enviro Engineers Pvt. Ltd.

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GURDARI BAUXITE MINE ENVIRONMENTAL MONITORING REPORT

DECEMBER 2021

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

CONTENT

LOCATION – GURDARI	
AMBIENT AIR QUALITY – CORE ZONE	
1	Entrance Gate / Near Mine Office
2	Near Mine Weigh Bridge
3	Near Kathuwapani Pit 23
4	Near AmbakanaPit / NKCPCL Camp
AMBIENT AIR QUALITY – BUFFER ZONE	
1	Near Dipa Kujam Village
2	Near Chathasari Village
3	Near Shakhupani Village
4	Near Pakri Gada Village





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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/JAN/0186/2021-22	Date: 20 th January, 2022
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: Entrance Gate / Near Mine Office	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Entrance Gate / Near Mine Office				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	59.1
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	4.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.9
05.	Ammonia (NH ₃)	µg/m ³	400	6.9
06.	Ozone (O ₃)	µg/m ³	180	7.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.27
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	µg/m ³	20	2.2
10.	Arsenic (As)	µg/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/JAN/0187/2021-22	Date: 20th January, 2022
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: <i>Near Mine Weigh Bridge</i>	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Near Mine Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	82.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	41.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.8
05.	Ammonia (NH ₃)	µg/m ³	400	8.3
06.	Ozone (O ₃)	µg/m ³	180	7.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.36
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	µg/m ³	20	1.6
10.	Arsenic (As)	µg/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.34

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/JAN/0188/2021-22	Date: 20 th January, 2022
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: Near Kathuwapani Pit 23	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Near Kathuwapani Pit 23				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	61.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	33.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.6
05.	Ammonia (NH ₃)	µg/m ³	400	6.0
06.	Ozone (O ₃)	µg/m ³	180	6.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	1.6
10.	Arsenic (As)	µg/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/JAN/0189/2021-22	Date: 20 th January, 2022
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: Near Ambakana Pit / NKCPCL Camp	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Near Ambakana Pit / NKCPCL Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	67.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	5.7
06.	Ozone (O ₃)	µg/m ³	180	6.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.21
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.2
10.	Arsenic (As)	µg/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/JAN/0190/2021-22	Date: 20 th January, 2022
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: Near Dipa Kujam Village	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	64.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	35.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.0
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.5
05.	Ammonia (NH ₃)	µg/m ³	400	4.5
06.	Ozone (O ₃)	µg/m ³	180	6.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	µg/m ³	20	1.3
10.	Arsenic (As)	µg/m ³	06	0.98
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/JAN/0191/2021-22	Date: 20th January, 2022
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: Near Chathasari Village	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	52.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.8
05.	Ammonia (NH ₃)	µg/m ³	400	5.8
06.	Ozone (O ₃)	µg/m ³	180	6.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.16
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	1.0
10.	Arsenic (As)	µg/m ³	06	0.88
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/JAN/0192/2021-22	Date: 20 th January, 2022
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: Near Shakhuapani Village	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	48.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	23.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.0
05.	Ammonia (NH ₃)	µg/m ³	400	4.5
06.	Ozone (O ₃)	µg/m ³	180	6.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.17
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	µg/m ³	20	1.4
10.	Arsenic (As)	µg/m ³	06	0.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

DECEMBER 2021

Report No. : MEEPL/OCT/0493/2021-22	Date: 20 th January, 2022
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: <i>Near Pakri Gada Village</i>	
Sample collected on: 22.12.2021	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	54.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	25.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.2
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	6.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.15
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	1.5
10.	Arsenic (As)	µg/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.17

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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GURDARI BAUXITE MINE ENVIRONMENTAL MONITORING REPORT

JANUARY 2022

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No.: MEEPL/FEB/0111/2021-22	Date: 10 th February, 2022
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: Entrance Gate / Near Mine Office	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Entrance Gate / Near Mine Office				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	75.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.8
05.	Ammonia (NH ₃)	µg/m ³	400	5.7
06.	Ozone (O ₃)	µg/m ³	180	9.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.06
09.	Nickel (Ni)	µg/m ³	20	2.4
10.	Arsenic (As)	µg/m ³	06	2.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.9
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No.: MEEPL/FEB/0112/2021-22	Date: 10 th February, 2022
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: Near Mine Weigh Bridge	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Near Mine Weigh Bridge					
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration	
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	87.5	
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	47.5	
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.2	
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	6.7	
05.	Ammonia (NH ₃)	µg/m ³	400	5.8	
06.	Ozone (O ₃)	µg/m ³	180	10.4	
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35	
08.	Lead (Pb)	µg/m ³	1.0	0.05	
09.	Nickel (Ni)	µg/m ³	20	2.4	
10.	Arsenic (As)	µg/m ³	06	2.9	
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.8	
12.	Benzo (a) Pyrene	µg/m ³	01	0.35	

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No.: MEEPL/FEB/0113/2021-22	Date: 10 th February, 2022
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: Near Kathuwapani Pit 23	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Near Kathuwapani Pit 23

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	83.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	45.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	8.6
05.	Ammonia (NH ₃)	µg/m ³	400	5.4
06.	Ozone (O ₃)	µg/m ³	180	9.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.43
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	µg/m ³	20	2.7
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.26

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No: MEEPL/FEB/0114/2021-22	Date: 10 th February, 2022
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: Near Ambakana Pit / NKCP Camp	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Near Ambakana Pit / NKCP Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	86.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	42.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	6.1
06.	Ozone (O ₃)	µg/m ³	180	9.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.9
10.	Arsenic (As)	µg/m ³	06	2.6
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.5

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No: MEEPL/FEB/0115/2021-22	Date: 10 th February, 2022
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: Near Dipa Kujam Village	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	72.6
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	2.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.9
05.	Ammonia (NH ₃)	µg/m ³	400	3.7
06.	Ozone (O ₃)	µg/m ³	180	10.3
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	µg/m ³	20	2.8
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	3.7
12.	Benzo (a) Pyrene	µg/m ³	01	0.31

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No: MEEPL/FEB/0116/2021-22	Date: 10 th February, 2022
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: Near Chathasari Village	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	68.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	34.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.8
05.	Ammonia (NH ₃)	µg/m ³	400	3.1
06.	Ozone (O ₃)	µg/m ³	180	8.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.7
10.	Arsenic (As)	µg/m ³	06	2.5
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.8
12.	Benzo (a) Pyrene	µg/m ³	01	0.34

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No: MEEPL/FEB/0117/2021-22	Date: 10 th February, 2022
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: <i>Near Shakhuapani Village</i>	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	61.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	3.8
06.	Ozone (O ₃)	µg/m ³	180	9.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.5
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.1
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No: MEEPL/FEB/0118/2021-22	Date: 10 th February, 2022
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: <i>Near Pakri Gada Village</i>	
Sample collected on: 24.01.2022	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	66.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.2
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	8.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.33
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.6
10.	Arsenic (As)	µg/m ³	06	2.4
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No.: MEEPL/FEB/0119/2021-22			Date: 10 th February, 2022		
Sample described by customer: Workshop Effluent Water					
Client Name: Hindalco Industries Limited					
Client Address: Lohardaga					
Postal Code: 835203					
State: Jharkhand					
Country: India					
Sample Type: Effluent Water					
Marks on Sample: Location: Gurdari Bauxite Mines					
Quantity: 4 liters.					
Sample collected on: 24.01.2022					
Sl. No.	Analysis	Method	Result	Unit	Limits
1.	pH	APHA 22 nd Ed. 2012, 4500-H+-B,4-92	8.2	mg/l	5.5-9.0
2.	Total Suspended Solids	APHA 22 nd EDN: 2012-2540	75	mg/l	100
3.	BOD @ 27°C	IS 3025 (Part 44): 1993, RA2003, Amd.1	7.3	mg/l	30
4.	COD	IS 3025 (Part 58): 1993, RA2006, Amd.1	33	mg/l	250
5.	Oil & Grease	IS 3025(PART 39): 1991 RA 2003, Ed 2.1	<5.0	mg/l	10
6.	Total Dissolved Solids	APHA 22 ND EDN 2012-2540	1549	mg/l	2100
7.	Aluminium (as Al)	APHA 22 nd EDN 2012-3120B	1.5	mg/l	3
8.	Calcium (as Ca)	APHA 22 nd EDN 2012-3120B	7.2	mg/l	75
9.	Iron (as Fe)	APHA 22 nd EDN 2012-3120B	1.3	mg/l	3
10.	Temperature		16.1	°C	Shall not exceed 5°C above the receiving water temperature

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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Report No: MEEPL/FEB/0120/2021-22	Date: 10 th February, 2022
Sample described by customer : DRINKING WATER	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER	
Marks on Sample: Location: Gurdari Bauxite Mines – Drinking Water	
Sample collected on: 24.01.2022	

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	0.2	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	6.8	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
7	Total Dissolved Solids	mg/l	181	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	34.3	200 max	APHA 22 nd Ed. 2012, 4500-Cl-G, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	26.5	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	5.8	250 max	APHA 22 nd Ed. 2012, 4500-Cl-b, 4-72
13	Sulphate (as SO ₄)	mg/l	4.2	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190



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Hindalco Industries : Gurdari

Environmental Monitoring Report

JANUARY 2022

Continuation Sheet

MEEPL/FEB/0120/2021-22

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method reference
14	Nitrate (as NO ₃)	mg/l	1.3	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.14	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	26	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	1.6	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	0.15	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, 3-18
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-18
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-18
31	Nickel (as Ni)	mg/l	<0.02	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-CNC & 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 : Gurdari

Environmental Monitoring Report

JANUARY 2022

Continuation Sheet
MEEPL/FEB/0120/2021-22

S.No	Parameters	Unit	Result	Acceptable Limit (IS10500:2012)	Method Reference
Microbiological Analysis					
1.	Total Colliforms	MPN/100 mL	N.D	<1.1	APHA 22nd Ed. 2012, 9221-B & C, 9-66, 9-69
2.	E-Coli	MPN/100 mL	N.D	Absent	APHA 22nd Ed. 2012, 9221-B, C & G, 9-66, 9-69 and 9-76
Pesticides Residues					
3.	p,p DDT	µg/L	N.D	1	US EPA 508-1995
4.	o,p DDT	µg/L	N.D	1	US EPA 508-1995
5.	p,p DDE	µg/L	N.D	1	US EPA 508-1995
6.	o,p DDE	µg/L	N.D	1	US EPA 508-1995
7.	p,p DDD	µg/L	N.D	1	US EPA 508-1995
8.	o,p DDD	µg/L	N.D	1	US EPA 508-1995
9.	γ-HCH (Lindane)	µg/L	<0.01	2	US EPA 508-1995
10.	α-HCH	µg/L	<0.01	0.02	US EPA 508-1995
11.	β-HCH	µg/L	N.D	0.03	US EPA 508-1995
12.	δ - HCH	µg/L	N.D	0.03	US EPA 508-1995
13.	Butachlor	µg/L	N.D	120	US EPA 508-1995
14.	Alachlor	µg/L	N.D	20	US EPA 508-1995
15.	Atrazine	µg/L	N.D	2.1	US EPA 532-2000
16.	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17.	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18.	Endosulfan Sulphate	µg/L	N.D	0.3	US EPA 508-1995
19.	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20.	Malathion	µg/L	N.D	185	US EPA 8141A -1994
21.	Methyl Parathion	µg/L	N.D	0.4	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	26	US EPA 8141A -1994
25.	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26.	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

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

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



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GURDARI BAUXITE MINE ENVIRONMENTAL MONITORING REPORT

FEBRUARY 2022

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

CONTENT

LOCATION – GURDARI	
AMBIENT AIR QUALITY – CORE ZONE	
1	Entrance Gate / Near Mine Office
2	Near Mine Weigh Bridge
3	Near Kathuwapani Pit 23
4	Near AmbakanaPit / NKCPCL Camp
AMBIENT AIR QUALITY – BUFFER ZONE	
1	Near Dipa Kujam Village
2	Near Chathasari Village
3	Near Shakhupani Village
4	Near Pakri Gada Village





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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0190/2021-22	Date: 5 th March, 2022
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: Entrance Gate / Near Mine Office	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Entrance Gate / Near Mine Office				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	39.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.5
05.	Ammonia (NH ₃)	µg/m ³	400	7.5
06.	Ozone (O ₃)	µg/m ³	180	9.1
07.	Carbon Monoxide (CO)	mg/m ³	02	0.28
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	µg/m ³	20	2.2
10.	Arsenic (As)	µg/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0191/2021-22	Date: 5th March, 2022
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: <i>Near Mine Weigh Bridge</i>	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Near Mine Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	89.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	53.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	8.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.7
05.	Ammonia (NH ₃)	µg/m ³	400	10.3
06.	Ozone (O ₃)	µg/m ³	180	7.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	µg/m ³	20	1.6
10.	Arsenic (As)	µg/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.32

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0191/2021-22	Date: 5 th March, 2022
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: Near Kathuwapani Pit 23	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Near Kathuwapani Pit 23				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	69.8
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	42.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.9
05.	Ammonia (NH ₃)	µg/m ³	400	7.3
06.	Ozone (O ₃)	µg/m ³	180	9.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.32
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	1.5
10.	Arsenic (As)	µg/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.27

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0192/2021-22	Date: 5 th March, 2022
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: Near Ambakana Pit / NKCP Camp	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Near Ambakana Pit / NKCP Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	77.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	45.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	7.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.9
05.	Ammonia (NH ₃)	µg/m ³	400	7.1
06.	Ozone (O ₃)	µg/m ³	180	9.0
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.2
10.	Arsenic (As)	µg/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.29

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0193/2021-22	Date: 5 th March, 2022
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: Near Dipa Kujam Village	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	73.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	43.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	7.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.5
05.	Ammonia (NH ₃)	µg/m ³	400	7.1
06.	Ozone (O ₃)	µg/m ³	180	9.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	µg/m ³	20	1.3
10.	Arsenic (As)	µg/m ³	06	1.0
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0194/2021-22	Date: 5th March, 2022
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: Near Chathasari Village	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Near Chathasari Village

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	36.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.1
05.	Ammonia (NH ₃)	µg/m ³	400	6.3
06.	Ozone (O ₃)	µg/m ³	180	8.7
07.	Carbon Monoxide (CO)	mg/m ³	02	0.26
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	1.0
10.	Arsenic (As)	µg/m ³	06	0.95
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0195/2021-22	Date: 5 th March, 2022
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: <i>Near Shakhuapani Village</i>	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	51.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.7
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.9
05.	Ammonia (NH ₃)	µg/m ³	400	4.9
06.	Ozone (O ₃)	µg/m ³	180	6.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.22
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	µg/m ³	20	1.4
10.	Arsenic (As)	µg/m ³	06	0.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

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Hindalco Industries : Gurdari

Environmental Monitoring Report

FEBRUARY 2022

Report No. : MEEPL/MAR/0196/2021-22	Date: 5 th March, 2022
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: <i>Near Pakri Gada Village</i>	
Sample collected on: 22.02.2022	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	57.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	36.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.2
05.	Ammonia (NH ₃)	µg/m ³	400	4.2
06.	Ozone (O ₃)	µg/m ³	180	6.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.25
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	1.5
10.	Arsenic (As)	µg/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

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GURDARI BAUXITE MINE ENVIRONMENTAL MONITORING REPORT

MARCH 2022

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

CONTENT

LOCATION – GURDARI	
AMBIENT AIR QUALITY – CORE ZONE	
1	Entrance Gate / Near Mine Office
2	Near Mine Weigh Bridge
3	Near Kathuwapani Pit 23
4	Near AmbakanaPit / NKCPCL Camp
AMBIENT AIR QUALITY – BUFFER ZONE	
1	Near Dipa Kujam Village
2	Near Chathasari Village
3	Near Shakhupani Village
4	Near Pakri Gada Village





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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0089/2022-23	Date: 16 th April, 2022
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: Entrance Gate / Near Mine Office	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Entrance Gate / Near Mine Office				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	32.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.3
05.	Ammonia (NH ₃)	µg/m ³	400	6.9
06.	Ozone (O ₃)	µg/m ³	180	7.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.26
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	µg/m ³	20	2.2
10.	Arsenic (As)	µg/m ³	06	1.8
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0090/2022-23	Date: 16 th April, 2022
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: <i>Near Mine Weigh Bridge</i>	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Near Mine Weigh Bridge

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	81.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	44.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.8
05.	Ammonia (NH ₃)	µg/m ³	400	8.3
06.	Ozone (O ₃)	µg/m ³	180	7.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.34
08.	Lead (Pb)	µg/m ³	1.0	0.05
09.	Nickel (Ni)	µg/m ³	20	1.6
10.	Arsenic (As)	µg/m ³	06	1.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.28

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0091/2022-23	Date: 16 th April, 2022
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: Near Kathuwapani Pit 23	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Near Kathuwapani Pit 23				
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	35.9
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.3
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.6
05.	Ammonia (NH ₃)	µg/m ³	400	6.0
06.	Ozone (O ₃)	µg/m ³	180	6.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	1.6
10.	Arsenic (As)	µg/m ³	06	1.9
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.22

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0092/2022-23	Date: 16 th April, 2022
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: Near Ambakana Pit / NKCP Camp	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Near Ambakana Pit / NKCP Camp				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	71.5
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	38.8
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	6.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.9
06.	Ozone (O ₃)	µg/m ³	180	7.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.23
08.	Lead (Pb)	µg/m ³	1.0	0.04
09.	Nickel (Ni)	µg/m ³	20	2.2
10.	Arsenic (As)	µg/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.25

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0093/2022-23	Date: 16 th April, 2022
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: Near Dipa Kujam Village	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Near Dipa Kujam Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	70.2
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	36.4
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.6
05.	Ammonia (NH ₃)	µg/m ³	400	5.8
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	µg/m ³	20	1.3
10.	Arsenic (As)	µg/m ³	06	0.98
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.3
12.	Benzo (a) Pyrene	µg/m ³	01	0.21

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0094/2022-23	Date: 16 th April, 2022
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: Near Chathasari Village	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Near Chathasari Village

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	55.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	28.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.8
06.	Ozone (O ₃)	µg/m ³	180	7.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.21
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	1.0
10.	Arsenic (As)	µg/m ³	06	0.88
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.2
12.	Benzo (a) Pyrene	µg/m ³	01	0.19

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
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Hindalco Industries : Gurdari

Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0095/2022-23	Date: 16 th April, 2022
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: <i>Near Shakhuapani Village</i>	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Near Shakhuapani Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	50.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	27.5
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.4
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	2.7
05.	Ammonia (NH ₃)	µg/m ³	400	5.8
06.	Ozone (O ₃)	µg/m ³	180	7.2
07.	Carbon Monoxide (CO)	mg/m ³	02	0.17
08.	Lead (Pb)	µg/m ³	1.0	0.01
09.	Nickel (Ni)	µg/m ³	20	1.4
10.	Arsenic (As)	µg/m ³	06	0.7
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.20

For Mahabal Enviro Engineers Pvt. Ltd.

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Environmental Monitoring Report

MARCH 2022

Reports No.: MEEPL/APR/0096/2022-23	Date: 16 th April, 2022
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: <i>Near Pakri Gada Village</i>	
Sample collected on: 24.03.2022	

LOCATION / IDENTIFICATION: Near Pakri Gada Village				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	58.1
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.1
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	3.4
05.	Ammonia (NH ₃)	µg/m ³	400	5.2
06.	Ozone (O ₃)	µg/m ³	180	6.9
07.	Carbon Monoxide (CO)	mg/m ³	02	0.18
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	µg/m ³	20	1.5
10.	Arsenic (As)	µg/m ³	06	1.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	1.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.18

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



Annexure 1

Piezometer reading - Gurdari Bauxite Mines

S No	Month	Depth (meter)
1	Oct-21	31.5
2	Nov-21	31.4
3	Dec-21	32.2
4	Jan-22	31.50
5	Feb-22	31.2
6	Mar-22	31.15

Annexure-2

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2021-22

The composite cost during the year 2021-22 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 ha), Pakhar (15.58 ha), Pakhar (109.507 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Serengdag (140.06 ha), Serengdag (155.81 ha), Jalim & Sanai (12.14 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.97 ha) Kujam II (157.38 ha), Bagru (75.41 ha), Hisri New (14.55 ha), Chiro kukud (152.57 ha), Orsa pat (196.36 ha), Bhusar (65.31 ha) and Bimarla Bauxite Mines (134.52 ha).

S No	Description	Budget (in Rupees)	Actual (in Rupees)
		FY 2021-22	FY 2021-22 (From October'21 to March'22)
1	Pollution Control & Environment monitoring	44,21,524.00	37,15,004.14
2	Reclamation/ Back filing & Rehabilitation**	3,91,80,000.00	26,00,502.90
3	Green belt, Plantation & Water spraying arrangement	50,25,900.00	47,56,080.07
4	Rural Development	3,10,21,250.00	1,54,13,087.31

**Part of OB removed cost.

(Basudev Gangopadhyay)
Head (Geology & Environment)



Annexure 3

Date – 06.07.2020

Office Order

Environmental Cell has been re-constituted at Gurdari Bauxite Mine (Area 584.19 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. Sanjay Kumar (Coordinator)
2. Mr. Rajesh Routray (Member)
3. Mr. Om Prakash Jha (Member)
4. Mr. Abhay Kumar – Environment Engineer

The Undersigned is the in charge of above Environment Management Cell constituted for the purpose of ensuring compliances of environmental act rule and regulation for the above mine.

Basudev Gangopadhyay
Senior Executive (Quality & Environment)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from October'21 to March'22									
S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)	
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	NIL	NIL	NIL	NIL	
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	77022	0.615	0.57	35701.35	
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	49547	0.17	0.11	22745.31	
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	42510	0.21	2.83	51005.56	
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	112090	1.82	5.38	208810.03	
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	67825	2.14	2.820	99496.240	
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	123492	4.15	2.83	251209.56	
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	50675	2.1762	1.86	208059.22	
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	24750	0.6655	0.3661	9164.10	
10	Jalim & Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	25925	0.5503	0.4121	11312.65	

Annexure 4

11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	NIL	NIL	NIL	NIL
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	NIL	NIL	NIL	NIL
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	NIL	NIL	NIL	NIL
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	NIL	NIL	NIL	NIL
15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	100000	0.76	1.60	350944.88
Minerals & Minerals Limited								
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	2200	0.08	0.12	0.00
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	120350	0.80	1.10	121300.73
18	Bimarla Bauxite Mine	134.37	300000	18.07.2009 to 17.07.2059	77050	1.02	1.80	124517.44

*Static information about the mines included in the above table



Basudev Gangopachay
Head (Geology & Environment)