ADITYA BIRLA

HINDALCO

Ref: HILS/HKD/24-25/ 266

14th May 2024

To

Deputy Director General of Forests (C),
Integrated Regional Office,
Ministry of Environment and Forests & CC,
Government of India,
A/3, Chandrasekharpur,
Bhubaneswar - 751023

Sub: Submission of six-monthly compliance report of Environment Clearance (EC) conditions for the period October'23 to March'24 with respect to our Aluminium Smelter & CPP at Hirakud in the district of Sambalpur, Odisha

Ref.: EC No.: (i) J-11011/400/2006-IA II (I), dated 6th February 2008 &
(ii) J-11011/144/2006-IA II (I), dated 19 October 2009

Dear Sir,

This is with reference to the above-stated Environment Clearance (EC), accorded to our Aluminium Smelter & CPP at Hirakud in the district of Sambalpur, Odisha.

Please find enclosed herewith the six-monthly compliances of the conditions of the ECs for the period of October'23 to March'24, along with data on the environmental quality of both plants.

Thanking you,

Yours truly
For Hindalco Industries Limited

Encl: As above

Debasish Mallik
Unit Head- Smelter & CPP

Copy for kind information to:

1. The Member Secretary, SPCB, Bhubaneswar
2. The Regional Director, Zonal Office of CPCB, Kolkata
3. The Regional Officer, SPCB, Sambalpur

Hindalco Industries Limited
Hirakud Complex, Hirakud - 768 016, District : Sambalpur, Odisha, India
T : +91663 2481307 / 2481273 / 2481295 I Fax : +91 663 2481356 / 2481342 I E : hindalco@adityabirla.com
W : www.hindalco.com
Registered Office : 21st Floor, One International Center, Tower 4, Senapati Bapat Marg,
Prabhadevi, Mumbai 400013
Corporate ID No.: L27020MH1958PLC011238

Six-Monthly Compliance to the Environmental Clearance (EC) Conditions granted for 360 KTPA Smelter & 967.5 MW CPP of M/s Hindalco Industries Limited, At/PO- Hirakud, Dist.- Sambalpur, Odisha.

Name of the project	M/s Hindalco Industries Limited, Smelter & Power At/Po- Hirakud, Dist- Sambalpur, State- Odisha, Pin -768 016.
Clearance Letter No: EC No.	J - 11011/400/2006-IA II (I), dated: 6th February 2008, & Amendment J - 11011/144/2006-IA II (I), dated 19th October 2009.
Period of Compliance Report	October'2023 to March'2024

Sl. No.	SPECIFIC CONDITIONS		Status as of 31st March 2024
(i)	As stated in the Public Hearing, the new expansion site shall be on the opposite site of the village.		The expansion site up to 216 KTPA Smelter & 467.5 MW CPP is on the opposite side of the village Nua Jamda.
(ii)	The expansion shall be based only on Pre-baked Anode Technology and all Soderberg Technology-based pots shall be converted to Pre-baked Anode Technology, as per the schedule submitted to the Ministry. The Captive Power Plant shall be based on CFBC/PFC Boiler.	:	Prebaked anode technology is being adopted in the existing Smelter Plant. All the Soderberg pots have already been converted to pre-baked technology. All the 13 Boilers of the 467.5 MW (1x 67.5 MW & 4x 100 MW) Power Plant are of CFBC technology.
(iii)	The gaseous emissions (SO_2, NOx, CO, HC, and Fluoride) and Particulate matter along with RSPM levels from various process units shall conform to the standards prescribed by the concerned authorities from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view of the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. Online continuous monitoring system for particulate emissions, SO_2 and NO_x shall be provided and shall make necessary arrangements for the submission of online real-time emission data to the CPCB website. Interlocking facility shall be provided between pollution control equipment and the process operation so that in the event of the pollution control equipment not working, the respective unit (s) is shut down automatically. In the event of failure of any pollution control system adopted by the unit, the respective unit should not be	:	The stack emission from Smelter & CPP units confirms to the standards prescribed by MoEF&CC, CPCB and OSPCB from time to time. Particulate Matter and Fluoride emission from FTP stacks and rooftop fugitive fluoride from pot rooms is being monitored on monthly basis and report is being submitted to SPCB & CPCB. The summary of the monitoring report is enclosed as **annexure I**. Online real-time fluoride and dust monitoring analyzers installed at all FTP stacks of Smelter. Opacity Monitors for monitoring of particulate matter and gas analyzers (CEMS) for SO_2, NOx, and Hg monitoring installed in all the stacks of CPP. Real-time monitoring data is being transmitted to SPCB/CPCB RTDAS server. As the pollution control devices are attached to multiple process operations (pots in case of Smelter and boilers in case of CPP) and the operations are continuous in nature interlocking facilities are not feasible. alarm systems have been installed for identification of any kind of failure/tripping of pollution

	restarted until the control measures are rectified to achieve the desired efficiency. Low NOx burners shall be installed to control the NOx emissions.		control systems attached to the operating units. In CPP, environment-friendly CFBC boilers have been installed in each unit, which are low NOx-generating. The emission is well below the limit prescribed by OSPCB.
(iv)	Only 10 new stacks shall be installed for the expansion project - 4 in the smelter plant, 4 in the anode plant, and 2 in the casting unit. The scrubbed alumina from the alumina-based dry scrubbing system shall be reused in the process. Minimum stack height shall be 50 m. The minimum height of other stacks of anode plant and casting plant shall be 35 m, which shall based on the Sulphur content of the fuel. 3 new stacks in the Power plant shall be provided with ESP.	:	Fume Treatment Plant (FTPs) with dry scrubbing systems have been installed and the enriched alumina from the FTPs is being reused in the process. Currently, Five Stacks of height of more than 50 m have been provided to all FTPs, and six stacks are attached to casting units & caster. Anode baking plant not installed in smelter unit. Stacks of height 130 m have been provided to each unit of CPP and ESPs of efficiency 99.9%, equipped with High Frequency Rectifier Transformers (HFTRs) have been provided to all boilers of the 467.5 MW CPP.
(v)	Total Fluoride emissions and pitch fumes from the smelter and anode-baking unit shall be controlled using alumina alumina-based dry scrubbing system to limit Fluoride emissions within 0.8 kg/ton Aluminium produced and SPM within 50 mg/Nm3. SPM emissions from the Captive Power Plant shall be less than 100 mg/NM3. Forage Fluoride levels of less than 80 ppm for one month, less than 60 ppm for two months, and less than 40 ppm for 12 months shall be complied with. Further, the pot emissions through the fume treatment plant shall not exceed 0.30 kg/ton of Aluminium produced.	:	All the FTPs of the Smelter are based on alumina-based dry scrubbers through which the total fluoride emission is controlled within the prescribed limit of CPCB/SPCB. Baked anodes from nearby units of Aditya Aluminium are used in the smelting process. The particulate matter, fluoride emissions, and forage fluoride in the grass are being monthly monitored for the impact of the Smelter Plant operation and reported to SPCB and MOEFCC through half-yearly EC compliance reports. All the processes of Smelter & CPP units meet the stipulated norms of MoEF&CC/CPCB/SPCB. Please refer to **Annexure-I** for a summary of the stack monitoring report of Smelter & CPP.
(vi)	Regular monitoring of fluoride content in ambient air, forage fluoride, and groundwater shall be carried out and data shall be submitted to the State Pollution Control Board.	:	Regular monitoring of fluoride in ambient air, surface water, groundwater as well as forage is being carried out in regular intervals and the data is being submitted to State Pollution Control Board along with monthly progress reports. The summary of the analysis report of Ambient Air, Ground Water, Surface Water, and Forage is enclosed as **Annexure II.**
(vii)	Raw material shall be stored in covered yards. Water sprinkling arrangements shall be made in the raw material stockyard to control fugitive emissions. Coal and other raw materials shall be transported in covered trucks, containers, etc., which shall later be shifted to covered rail wagons.	:	The Coal for the Power Plant is transported from various sources through railway BOXN wagons and trucks with tarpaulin covering and stored under sheds in the coal yard of the Power plant. Dust suppression arrangement like water sprinkling is done through fixed sprinklers to prevent fugitive emissions.

			Fugitive dust on the roads is suppressed by water sprinkling through mobile water tankers. 76 nos. of water spraying systems/ rain guns have been installed in and around the Coal yard & Railway siding. Besides, 06 nos of mist Fog canons have also been deployed for CHP and ash silo area. Alumina for Smelter Plant is transported from Alumina Refinery at Rayagada, Odisha, and Muri, Jharkhand through BTAP wagons/ bulkers and stored in dedicated Alumina silos, for which 09 silos (6 x 1700 MT, 1 x 3400 MT, & 2 x 3500 MT). Alumina from the silos is conveyed pneumatically to the pots.
(viii)	In plant control measures for checking fugitive emissions from all the vulnerable sources like spillage/raw materials/coal handlings etc. shall be provided. Further, specific measures like the provision of a dust extraction and suppression system consisting of water sprinkling, suction hoods, fans, cyclones, bag filters, venturi scrubbers, etc. shall be installed at material transfer points and other enclosed raw material handling areas. Centralized de-dusting system i.e. collection of fugitive emissions through a suction hood shall be provided and subsequent treatment through a bag filter or any other device and finally emitted through a stack of appropriately designed height, as prescribed above.	:	Bag filters have been provided to Fume Treatment Plants (FTPs) connected to the Smelting process. Dust collection and suppression systems have been provided at different dust-generating sources of Smelter. Control of fugitive emissions in CPP is ensured by the central de-dusting system with suction hoods. Bag filters have also been provided in the crusher houses of CHP and Ash silos. Dust suppression systems have been provided in the railway siding, coal yard, ash silo area, ash transporting road, and all other vulnerable areas of fugitive dust emission. Adequate ash conditioning is being ensured before ash unloading from the ash silo to prevent fugitive dust emission. Frequent water sprinkling is carried out on the ash and coal transportation roads.
(ix)	Fugitive Fluoride emissions from the Pot room shall not exceed 0.4 Kg/Ton of Aluminium produced. Fugitive emissions, especially in the work zone area, product, and raw materials storage area, etc. shall be regularly monitored and records maintained. The emissions shall conform to the limits imposed by the State Pollution Control Boards / Central Pollution Control Board.	:	The fugitive fluoride emission from the pot room is ~ 0.32 Kg/ MT of Aluminium produced. Regular monitoring of fugitive emissions in the work zones is being carried out. The fluoride emission is being monitored through a continuous emission monitoring analyzer and data is transmitted to SPCB & CPCB. The summary of the potroom rooftop fugitive monitoring report is attached as **Annexure-III**.
(x)	Windbreakers shall be installed to restrict fugitive dust	:	Boundary wall with windbreaker of sufficient height installed in Coal handling area to restrict the fugitive dust. Adequate nos of sprinkling, at potential source of generation, is being carried out through fixed and mobile sprinklers to contain the fugitive dust.

(xi)	The water requirement for the expansion project shall not exceed 69,600 KLD and shall be sourced from the Hirakud reservoir	:	The raw water for Smelter, Power & FRP is being sourced from the Hirakud reservoir. Total raw water withdrawal from the reservoir is around 24,500 KLD (Avg.) for the period from April '23 to March '24.
(xii)	Wastewater generation shall not exceed 14,250 KLD for the expansion project. Wastewater generated from smelter shall be treated in Rotating Biological Contactor and shall be reused in the plant. Cooling water blow down from the power plant shall be treated up to discharge standards and discharged into Kharjhor nalla.	:	The wastewater generation from all the units is around 2943 KLD (avg.) for the period April '23 to March '24. The wastewater generated from the Smelter is being treated in three nos. of effluent treatment plants (ETPs) of capacity 250 KLD, 350 KLD, and 50 KLD and reused in cooling towers. The earlier installed Rotating Biological Contractor (RBC) has been replaced with an RO-based 350 KLD ETP. The cooling tower blow-down water of CPP is treated in the RO Plant and reused for cooling. Wastewater from other processes is being treated to meet the standards before reuse in various in-house activities and cooling towers. The domestic wastewater of three plants is treated in STPs of capacities 500KLD, 400KLD, 300KLD & 100KLD. The treated water of these STPs water is reused inside plants for gardening. Monitoring of water quality is being carried out on a monthly basis and the same is enclosed for the period October'23 to March'24. Refer to **Annexure IV**.
(xiii)	7650 TPA of solid waste generated, mainly the spent pot lining from the smelter shall be disposed of in a secured landfill site inside the premises. The SLF shall be as per CPCB guidelines. 2.55 million TPA of coal ash generated from the power plant shall be disposed of as dry ash mounds. However, it shall be ultimately disposed of as backfill material in abandoned coal mines or shall be utilized as per the Fly Ash Notification 5.0.763 (E) dated 14.9.1999 of this Ministry. The proposed Amendment / revision to this Notification shall be applicable for compliance from the Project Authority	:	The carbon part of spent pot lining is disposed to actual users i.e., M/s Regrow Transo Pvt Ltd., Jharsuguda the refractory part to M/s Re Sustainability (CHW-TSDF, Jajpur), mixed fines to cement plants for co-processing and silicon carbide to authorized recycler. Besides, SPL refractory parts are also supplied to Teknoprocressors LLP for trial run purposes. The Aluminium dross generated in the process is re-processed in the in-house Dross Processing Unit and partly supplied to actual users and other hazardous waste is disposed to actual users/CHWTSDF/Co-processing in Cement manufacturing in line with the hazardous waste authorization order. Presently, no waste is being disposed of in captive SLF.

			The Coal ash generated from the CPP is supplied to brick manufacturers, cement plants, low-lying area filling, road making, and other areas. The ash utilization for the period FY 23-24 is 100.12%. The ash generation and utilization status are enclosed as **Annexure-V.**
(xiv)	Minimum Cycle of Concentration (COC) for the CPP shall be 5.0	:	The CoC was maintained at ~ 6 in all the operating units of CPP.
(xv)	Minimum of 33 % of the total land area shall be developed as green belt with local species in consultation and as per the CPCB's guidelines.	:	Around 36% of the total project area has been covered under greenbelt. The details of the plantation are enclosed as **Annexure -VI.**
(xvi)	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium Sector shall be strictly implemented.	:	All the recommendations of Charter of Corporate Responsibility for Environment Protection (CREP) for the Aluminium sector are implemented and followed.
(xvii)	The project authorities shall earmark Rs.369 crores to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	:	The project implementation has been completed for 216 KTPA Smelter & 467.5 MW CPP out of 360 KPTA Smelter & 967.5 MW CPP granted for EC & CTE. All required pollution control measures like ESPs, BF, FTPs, ETP & STP, Stacks, and pollution control measures have been installed for these facilities in Smelter & CPP.
B. GENERAL CONDITIONS:			
(i)	The project authorities shall strictly adhere to the stipulations made by the State Pollution Control Board	:	Stipulations of the State Pollution Control Board through its CTO are being strictly adhered.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	:	No expansion or modifications in the plant have been done without prior approval of MoEF&CC/SPCB.
(iii)	Regular monitoring of ambient air for SPM, RSPM, SO_2, NO_x, CO, HC, and Fluoride shall be carried out as per CPCB guidelines. The locations of ambient air quality monitoring stations shall be reviewed in consultation with the State Pollution Control Board (SPCB) and additional stations shall be installed, if required, in the downwind direction as well as where maximum ground level concentrations are anticipated.	:	The ambient air quality is being monitored at 8 locations surrounding the Smelter, and CPP. The summary of ambient air quality monitoring is enclosed as **Annexure- VII.** For the continuous monitoring of ambient air quality 5 no's CAAQMS (2 nos inside Smelter premise & 3 nos inside CPP premise) have been installed. The online monitoring data is being transmitted to servers of SPCB & CPCB server.
(iv)	Data on ambient air quality, fugitive emissions, and stack emissions should be regularly submitted to the concerned Regional Office of this Ministry	:	Data on ambient air quality, fugitive emissions, stack emissions, and water effluent quality are being regularly submitted to the

	and SPCB/CPCB every six months and posted on the Website of the Project Authority		Eastern Regional Office along with six monthly EC compliance reports before 1st June & 1st Dec. The six-monthly compliance report is available on the company's website. (URL: http://www.hindalco.com/sustainability/regulatory-compliances)
(v)	Industrial wastewater shall be properly collected and treated so as to conform to the standards prescribed under GSR422 (E) dated 19th May 1993 and 3rd December, 1993 or as amended from time to time	:	Wastewater is collected and treated to meet the standards and the treated water is reused as Cooling tower make-up. The analysis is being submitted to SPCB every month.
(vi)	The project authorities shall strictly comply with the rules and guidelines under the Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989 as amended in October 1994 and January 2000, and Hazardous Waste (Management and Handling) Rules, 1989, as amended from time to time. Authorization from the SPCB shall be obtained for the collection, treatment, storage, and disposal of hazardous wastes. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989	:	Authorization for the Management and Handling of Hazardous Waste has been obtained from the State Pollution Control Board for Smelter and CPP separately. The conditions stipulated in the authorizations are being strictly followed in line with the authorization order.
(vii)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures, etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time)	:	The Noise level in and around the plants is being monitored monthly and found within the prescribed limit. The monthly report is being submitted to SPCB. The ambient noise level data for the period October 2023 to March'2024 is enclosed as **Annexure-VIII.**
(viii)	Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained as per the Factories Act.	:	Occupational health surveillance of all the employees is being carried out regularly and records are maintained.
(ix)	Training shall be imparted to all employees on the safety and health aspects of chemical handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis	:	Regular training is being imparted to all the employees on various safety, health and environmental topics. Pre-employment and routine periodical medical examinations for all employees are being undertaken regularly. For the period October'2023 to March'2024 the health surveillance statistics are as follows: Pre-employment health surveillance against new recruitment- 3092 people.

			Periodic medical health surveillance for permanent employees- 912 people. Periodic medical health surveillance for contractual employees- 3651 people.
(x)	Usage of PPEs by all employees/ workers shall be ensured	:	The use of PPEs by all the employees and contractual workers is being strictly ensured in the unit.
(xi)	The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and stormwater drains to recharge the groundwater and use the same water for the various activities of the project to conserve fresh water	:	Rainwater harvesting structure has been installed for the administrative building and is under construction for other areas in the residential colonies.
(xii)	The project proponent shall also comply with all the environmental protection measures and safeguards proposed in the EIA/EMP report. All the recommendations made in respect of environmental management and risk mitigation measures relating to the project shall be implemented.	:	We are complying with the environmental protection measures and safeguards proposed in the EIA/EMP. All the recommendations made in respect of environmental management and risk mitigation measures relating to the project have been implemented.
(xiii)	The company will undertake all relevant measures, as indicated during the Public Hearing to improve the Socio-economic conditions of the surrounding area. CSR activities will be undertaken by involving local villages and administration	:	The company is undertaking various community development programs in and around Hirakud involving SHGs. The expenditure towards CSR activities & details of beneficiaries for the period October'2023 to March'2024 are enclosed as **Annexure IX.**
(xiv)	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment. The eco-development plan should be submitted to the SPCB within three months of receipt of this letter for approval	:	The company is undertaking various community development programs in and around Hirakud involving local SHGs. Various welfare measures are undertaken. During the period October'2023 to March'2024 Rs. 178.03 Lakh has been spent towards community development projects including rural periphery development at Hirakud localities. **Refer to annexure IX.**
(xv)	A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	:	Separate Environmental Management Cell with required laboratory facility available in Smelter & CPP Complex to carry out environmental monitoring & analysis activities.
(xvi)	The implementation of the project vis-a-vis environmental action plans shall be monitored by the concerned Regional Office of the Ministry/ SPCB / CPCB. A six-monthly compliance status report shall be submitted to monitoring agencies and shall be posted on the Website of the Company.	:	The six-monthly compliance status report is submitted before 1st June & 1st December each year and is uploaded to our Company website. Ref URL: http://www.hindalco.com/sustainability/regulatory-compliances

(xvii)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/ Committee and may also be seen at the Website of the Ministry at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	:	The public was informed through advertisements in three widely circulated regional newspapers namely: (1) The Dharitri, Dated 12th February 2008 (2) The Agnisikha, Dated 12th February 2008 (3) The Sambad, Dated 14th February 2008, This was also communicated to the Regional Office of MOEF, Bhubaneswar vide our letter of 14th February 2008 along with copies of the newsletters.
(xviii)	The project authorities shall inform the Regional Office as well as the Ministry, of the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	:	The Smelter & CPP expansion has been carried out in a phased manner. The last expansion of Smelter, i.e. addition of 235KA potline (80 pots) commissioned in October 2014.
(xix)	The Ministry may revoke or suspend the clearance if the implementation of any of the above conditions is not satisfactory.	:	Noted and accepted.

Amendment Letter: J - 11011/144/2006-IA II (I), dated 19th October 2009.

Sl. No	Conditions		Compliance status as on 31st March 2024
3.0.1	All the specific and general conditions shall remain unchanged and have to be complied in Toto and paripassu.	:	All the specific and general conditions are complied
2	There shall be no change or modification in the ultimate capacity of the Smelter Plant (1,00,000 to 3,60,000 TPA) and Captive Power Plant (267.5 MW to 967.5 MW).	:	The Smelter & CPP capacity is 216 KTPA & 467.5 MW, which is within the approved capacity.
3	All the emissions (ambient air, stack, fugitive, and fluoride emissions) shall be within the permissible limit as prescribed in the Environmental Clearance dated 6th February 2008.	:	All the emissions are within the prescribed limit. Please refer to the annexure annexures **I, II, & III.**
4	No additional land shall be acquired.	:	No additional land was acquired for the expansion activities.
5	No additional water shall be used.	:	The water consumption is within the limit specified in EC.
6	A copy of the clearance letter shall be sent by the proponent to the concerned Panchayat Zilla Parishad / Municipal Cooperation, Urban local body, and the local NGO, if any, from whom suggestions/representations if any were received while processing the proposal.	:	The copy of the environmental clearance letter was submitted to the local Urban local body.

	The clearance letter shall also be put on the website of the company by the proponent.		
7	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Bhubaneswar, the respective Zonal office of CPCB and the OPCB. The criteria pollutant levels namely, SPM, RSPM, SO_2, NO_x (ambient levels as well as Stack emissions) or critical sectorial parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	:	The six-monthly EC compliance is submitted to the Regional Office of the Ministry of Environment & Forests & Climate Change (MoEF&CC), Bhubaneswar regularly. The same is also uploaded on the website of the company. Environmental monitoring parameters are displayed in the main gates of both the Smelter and Power Plant for the public.
8	The project proponent shall also submit six monthly reports on the status of compliance with the stipulated environment clearance conditions, including results of monitored data (both in hard copies as well as by e-mail) to the regional office of MOEF at Bhubaneswar, the respective Zonal office of CPCB and the OPCB. The Regional Office of this Ministry at Bhubaneswar / CPCB/ OPCB shall monitor the stipulated conditions.	:	Six monthly compliance of Environment Clearance (EC) conditions are submitted through the MOEFCC Portal.
9	The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Office of the MoEFCC by e-mail.	:	The annual environmental statement in Form-V is being submitted to the State Pollution Control Board and MOEFCC every year and is being uploaded to the company's website. (URL: http://www.hindalco.com/sustainability/regulatory-compliances)

(Authorized Signatory)

ANNEXURE – I

Environmental Quality Parameters Stack Emission of Smelter Fume Treatment Plant

(Done through NABL approved Laboratory)

(October'2023 to March' 2024)

Particulate Matter: Standard: 100 mg/Nm3 Total Fluoride: Standard: 0.3 Kg/MT. Al.

Stack	Parameter	UOM	STD	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24	Average
FTP -I Stack-1	Particulate Matter	mg/Nm3	100	12.6	12.6	12.6	13.5	15.8	13.7	13.5
	Total Fluoride	Kg/MT. Al	0.3	0.15	0.12	0.15	0.15	0.17	0.16	0.15
	Hydrocarbon	ppm	-	3.87	3.54	3.79	2.91	3.67	2.97	3.46
FTP -I Stack-2	Particulate Matter	mg/Nm3	100	14.5	13.6	13.9	14.3	11.2	10.4	13.0
	Total Fluoride	Kg/MT. Al	0.3	0.16	0.12	0.15	0.15	0.16	0.16	0.15
	Hydrocarbon	ppm	-	5.64	4.29	4.29	4.55	4.27	4.01	4.51
FTP -2 Stack-3	Particulate Matter	mg/Nm3	100	11.8	14.7	12.0	10.4	12.6	15.8	12.9
	Total Fluoride	Kg/MT. Al	0.3	0.14	0.20	0.19	0.21	0.17	0.14	0.18
	Hydrocarbon	ppm	-	4.88	5.68	5.29	3.96	4.22	5.14	4.86
FTP -3 Stack-4	Particulate Matter	mg/Nm3	100	15.6	15.4	12.4	10.6	12.7	13.5	13.4
	Total Fluoride	Kg/MT. Al	0.3	0.14	0.15	0.14	0.16	0.15	0.15	0.15
	Hydrocarbon	ppm	-	6.79	6.69	5.88	5.44	6.89	6.69	6.40
FTP - 4 Stack-5	Particulate Matter	mg/Nm3	100	16.2	11.0	10.1	15.7	10.6	14.8	13.1
	Total Fluoride	Kg/MT. Al	0.3	0.13	0.11	0.13	0.11	0.12	0.12	0.12
	Hydrocarbon	ppm	-	7.57	6.12	6.29	5.14	5.79	6.12	6.17

Environmental Quality Parameters Stack Emission of CPP Stack

(Done through NABL approved Laboratory)

(October 2023 - March 2024)

Unit # I

Process attached to the unit: Boiler # 1 &2

Sl. No.	Month / Year	Unit	PM	SO_2	NO_x	Hg
01.	October	mg / NM^3	The unit was under shut down (SD)			
02.	November	mg / NM^3	The unit was under shut down (SD)			
03.	December	mg / NM^3	The unit was under shut down (SD)			
04.	January	mg / NM^3	The unit was under shut down (SD)			
05.	February	mg / NM^3	The unit was under shut down (SD)			
06.	March	mg / NM^3	The unit was under shut down (SD)			
Average		mg / NM^3	The unit was under shut down (SD)			
Standard		mg / NM^3	100	600	600	

STACK EMISSION

(October 2023 - March 2024)

Unit # II

Process attached to the unit : Boiler # 3, 4 & 5

Sl.No.	Month / Year	Unit	PM	SO_2	NO_x	Hg
01.	October	mg / NM^3	41.98	439.23	280.58	0.007
02.	November	mg / NM^3	45.55	434.42	293.97	0.008
03.	December	mg / NM^3	46.43	442.75	304.33	0.008
04.	January	mg / NM^3	44.63	466.83	301.02	0.008
05.	February	mg / NM^3	41.70	426.45	298.62	0.008
06.	March	mg / NM^3	43.68	409.40	319.53	0.008
Average		mg / NM^3	**44.0**	**436.51**	**299.68**	**0.0078**
Standard		mg / NM^3	100	600	450	0.03

STACK EMISSION
(October 2023 - March 2024)

Unit # III

Process attached to the unit : Boiler # 6, 7 &8

Sl.No.	Month / Year	Unit	PM	SO_2	NO_x	Hg
01.	October	mg / NM^3	45.43	455.88	276.58	0.0068
02.	November	mg / NM^3	43.30	461.95	278.68	0.0071
03.	December	mg / NM^3	45.23	454.92	287.17	0.0072
04.	January	mg / NM^3	44.35	460.20	298.00	0.0072
05.	February	mg / NM^3	44.63	451.12	318.73	0.0075
06.	March	mg / NM^3	42.70	439.30	312.27	0.0079
	Average	mg / NM^3	**44.27**	**453.90**	**295.24**	**0.0073**
	Standard	mg / NM^3	100	600	450	0.03

STACK EMISSION
(October 2023 - March 2024)
Unit # IV

Process attached to the unit : Boiler # 9, 10 &11

Sl.No.	Month / Year	Unit	PM	SO_2	NO_x	Hg
01.	October	mg / NM^3	42.25	436.23	279.50	0.0070
02.	November	mg / NM^3	44.30	447.93	269.70	0.0073
03.	December	mg / NM^3	41.05	471.05	273.70	0.0077
04.	January	mg / NM^3	41.35	459.13	275.93	0.0076
05.	February	mg / NM^3	44.15	428.50	308.70	0.0073
06.	March	mg / NM^3	43.08	432.05	315.43	0.0072
	Average	mg / NM^3	**42.70**	**445.82**	**287.16**	**0.0074**
	Standard	mg / NM^3	100	600	450	0.03

STACK EMISSION
(October 2023 - March 2024)

Unit # V

Process attached to the unit : Boiler # 12 &13

Sl.No.	Month / Year	Unit	PM	SO_2	NO_x	Hg
01.	October	mg / NM^3	46.80	456.70	257.10	0.0067
02.	November	mg / NM^3	46.18	464.35	273.50	0.0076
03.	December	mg / NM^3	44.90	474.90	287.93	0.0086
04.	January	mg / NM^3	44.10	461.93	297.65	0.0085
05.	February	mg / NM^3	44.08	464.78	305.10	0.0085
06.	March	mg / NM^3	41.78	443.08	294.58	0.0084
Average		mg / NM^3	**44.64**	**460.96**	**285.98**	**0.0081**
Standard		mg / NM^3	50	600	450	0.03

ANNEXURE – II

AMBIENT AIR MONITORING (SMELTER)

(by NABL-approved External Lab)

PARTICULATE MATTER (PM 10): Unit: µg/Nm3 **Standard: 100 µg/Nm3 (24 hours)**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	53.92	51.00	51.72	50.82	51.23	56.83
R&D Building	51.55	51.52	51.57	51.57	51.57	51.20
Rectifier Station #4 (80 Pot, 235 KA)	58.25	57.55	59.22	52.87	56.18	59.70
Near Cast House #4 (80 Pot, 235 KA)	54.47	54.52	56.07	55.77	59.23	56.70
Near SPL Shed	57.72	52.40	56.65	54.75	58.00	55.28
Near Ram Mandir	49.80	48.02	48.35	50.40	50.53	52.03
Hindalco Club Colony	48.70	50.10	50.42	50.97	50.65	52.20

PARTICULATE MATTER (PM 2.5): Unit: µg/Nm3 **Standard: 60 µg/Nm3 (24 hours)**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	26.70	25.70	24.45	23.65	24.25	26.75
R&D Building	26.07	23.95	25.20	25.20	25.20	22.68
Rectifier Station #4 (80 Pot, 235 KA)	28.05	27.65	28.57	25.75	24.43	28.25
Near Cast House #4 (80 Pot, 235 KA)	27.02	26.80	26.90	27.02	28.13	25.28
Near SPL Shed	28.25	24.77	27.12	25.95	28.28	25.75
Near Ram Mandir	24.42	23.75	22.90	23.77	25.40	22.18
Hindalco Club Colony	24.32	23.97	24.40	25.52	21.68	23.18

SULPHUR DI-OXIDE (SO2): Unit: µg/Nm3 **Standard: 80 µg/Nm3 (24 hours)**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	7.17	7.17	7.12	7.37	7.20	7.23
R&D Building	7.72	7.07	7.22	7.22	7.22	6.88
Rectifier Station #4 (80 Pot, 235 KA)	7.52	8.15	7.75	7.72	6.93	7.50
Near Cast House #4 (80 Pot, 235 KA)	7.17	7.27	7.37	7.57	7.43	7.38
Near SPL Shed	7.27	7.42	7.45	7.55	7.45	7.45
Near Ram Mandir	7.00	7.32	6.87	7.30	7.20	7.15
Hindalco Club Colony	7.25	7.05	6.70	7.25	7.15	7.52

NITROGEN OXIDE (NOX): Unit: µg/Nm3 **Standard: 80 µg/Nm3 (24 hours)**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	23.55	22.52	20.32	20.80	20.73	23.25
R&D Building	21.77	21.12	21.42	21.42	21.42	18.90
Rectifier Station #4 (80 Pot, 235 KA)	25.12	24.72	25.17	23.17	20.35	23.48
Near Cast House #4 (80 Pot, 235 KA)	22.75	23.50	23.45	22.47	23.00	21.20
Near SPL Shed	24.62	20.97	22.67	22.52	22.00	22.09
Near Ram Mandir	21.05	19.34	18.90	20.12	19.93	17.93
Hindalco Club Colony	21.07	21.02	19.60	22.22	18.28	18.00

CARBON MONOXIDE (CO): Unit: µg/Nm3 **Standard: 2 mg/Nm3 (8 hours)**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	0.59	0.56	0.55	0.55	0.54	0.58
R&D Building	0.47	0.56	0.55	0.55	0.55	0.56
Rectifier Station #4 (80 Pot, 235 KA)	0.61	0.70	0.71	0.61	0.68	0.69
Near Cast House #4 (80 Pot, 235 KA)	0.56	0.55	0.63	0.65	0.62	0.60
Near SPL Shed	0.60	0.65	0.61	0.51	0.59	0.61
Near Ram Mandir	0.52	0.55	0.56	0.50	0.53	0.51
Hindalco Club Colony	0.54	0.50	0.65	0.59	0.61	0.59

Ozone (O_3): Unit: µg/Nm3 **Standard: 100 µg/Nm3 (24 hours)**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	25.40	24.20	BDL	20.30	BDL	BDL
R&D Building	21.00	BDL	BDL	BDL	BDL	BDL
Rectifier Station #4 (80 Pot, 235 KA)	20.9	22.30	21.45	25.10	BDL	BDL
Near Cast House #4 (80 Pot, 235 KA)	BDL	BDL	23.70	21.60	BDL	BDL
Near SPL Shed	21.40	20.80	23.80	22.65	BDL	BDL
Near Ram Mandir	<20.0	BDL	BDL	BDL	BDL	BDL
Hindalco Club Colony	BDL	BDL	BDL	21.65	BDL	BDL

BDL – Below Detection Limit *Ozone (O3): < 20 µg/Nm3

Ammonia (NH3): Unit: µg/Nm3 **Standard: 400 µg/Nm3 (24 hours)**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	20.07	18.80	16.40	18.77	12.03	10.90
R&D Building	17.62	18.00	17.92	16.67	16.67	11.80
Rectifier Station #4 (80 Pot, 235 KA)	21.37	21.27	20.50	19.02	11.13	12.35
Near Cast House #4 (80 Pot, 235 KA)	19.72	19.97	18.37	17.57	12.20	13.20
Near SPL Shed	21.62	16.72	18.92	19.22	10.90	10.75
Near Ram Mandir	17.12	15.35	15.40	16.47	12.08	12.08
Hindalco Club Colony	18.52	16.12	15.45	18.70	12.17	10.93

Fluoride (HF): Unit: µg/Nm3

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
Pump House near Adm. Building	0.065	0.067	0.061	0.061	0.053	0.060
R&D Building	0.062	0.063	0.059	0.059	0.053	0.063
Rectifier Station #4 (80 Pot, 235 KA)	0.068	0.073	0.071	0.071	0.073	0.073
Near Cast House #4 (80 Pot, 235 KA)	0.062	0.052	0.075	0.069	0.075	0.071
Near SPL Shed	0.073	0.058	0.068	0.072	0.071	0.077
Near Ram Mandir	0.057	0.053	0.060	0.056	0.066	0.058
Hindalco Club Colony	0.054	0.062	0.062	0.054	0.059	0.060

Note:- Lead (Pb): - <0.01 µg/Nm3, Nickel(Ni):- <5.0, Arsenic (As):- <1.0, Benzene(C6H6):- <4.2 µg/Nm3 and Benzo Pyrene(BaP):- <0.5 µg/Nm3 in all seven locations respectively.

Standard as per NAAQ :- O3(8 hours):100 µg/m3, NH3 (24 hours): 400 µg/m3, Pb (24 hours): 1 µg/m3, Ni (Annual): 20 µg/m3, As (Annual) : 6 µg/m3, C6H6 (Annual) : 5 µg/m3, BaP (Annual) : 1 µg/m3, HF (8 hours):

AMBIENT AIR MONITORING (CPP)
(October 2023 - March 2024)

PARTICULATE MATTER (PM_{10}): **Limit : 100.00 µg / m^3**

Location	Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24
FHP Control Room Top	69.50	70.50	69.30	69.80	69.20	68.70
120^0 NNE (Near Hindalco Admn. Building)	63.80	62.10	63.40	64.10	63.80	62.50
240^0 SSE (Rajapada village)	59.50	60.40	61.20	62.20	61.70	62.10
360^0 W (Hindalco Club)	60.10	61.80	61.20	61.30	60.80	60.40
Jyoti Vihar, Burla	58.10	59.70	60.30	61.10	61.80	62.00
Ash Mound Road	63.40	64.50	65.20	65.90	66.70	66.30
Ash Mound area	61.80	62.60	62.30	63.10	64.20	65.10
Ash Silo	66.20	65.90	64.70	64.50	65.10	64.90

SULPHUR DI-OXIDE (SO_2) : **Limit : 80.00 µg / m^3**

Location	Oct '23	Nov '23	Dec '24	Jan '24	Feb '24	Mar '24
FHP Control Room Top	24.90	25.20	25.70	25.10	26.10	25.80
120^0 NNE (Near Hindalco Admn. Building)	19.20	18.90	19.20	19.80	19.20	19.80
240^0 SSE (Rajapada village)	15.10	15.80	15.60	16.30	17.10	17.70
360^0 W (Hindalco Club)	15.30	14.70	15.60	14.70	15.20	18.00
Jyoti Vihar, Burla	19.80	19.60	19.50	19.80	18.90	19.30
Ash Mound Road	20.80	21.20	21.80	22.00	21.70	22.10
Ash Mound area	21.30	20.50	20.90	21.60	22.30	21.60
Ash Silo	21.90	19.60	21.30	21.00	21.80	21.60

NITROGEN OXIDE (NO_X): **Limit : 80.00 µg / m^3**

Location	Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24
FHP Control Room Top	26.80	26.20	26.70	27.30	28.20	28.80
120^0 NNE (Near Hindalco Admn. Building)	22.70	23.40	23.20	22.90	23.30	22.90
240^0 SSE (Rajapada village)	23.10	23.90	24.20	24.60	24.10	23.90
360^0 W (Hindalco Club)	18.90	19.50	24.20	20.10	21.20	21.00
Jyoti Vihar, Burla	24.20	25.30	25.90	25.70	26.10	26.30
Ash Mound Road	21.20	20.60	21.10	21.80	22.00	22.40
Ash Mound area	22.30	22.80	22.60	23.20	22.90	24.80
Ash Silo	25.80	25.30	26.40	26.10	25.70	24.80

PARTICULATE MATTER ($PM_{2.5}$) : Limit : 60.00 µg / m^3

Location	Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24
FHP Control Room Top	37.30	36.80	35.90	35.50	35.40	35.10
120^0 NNE (Near Hindalco Admn. Building)	33.60	32.50	32.10	33.10	32.50	32.20
240^0 SSE (Rajapada village)	30.10	32.50	31.20	31.80	32.20	31.90
360^0 W (Hindalco Club)	30.60	31.20	31.20	30.90	31.70	31.10
Jyoti Vihar, Burla	28.50	60.10	31.60	31.00	32.00	31.80
Ash Mound Road	33.60	33.70	34.10	33.80	34.20	33.80
Ash Mound area	31.20	32.20	31.80	32.20	33.10	32.90
Ash Silo	34.20	30.10	33.80	33.50	33.70	32.90

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Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR-15498 **Date: 05.07.2023**

SURFACE WATER QUALITY ANALYSIS REPORT MAY-2023

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling location	:	SW-5: Mahanadi river downstream; SW-6: Tarasinghpara Drain SW-7:Drain near work manager's bunglow, SW-8:Sambalpur distributary near ash pond
3. Date of sampling	:	15.05.2023
4. Date of analysis	:	16.05.2023 TO 22.05.2022
5. Sample collected by	:	VCSPL Representative

Sl. No	Parameter	Testing Methods	Unit	Standards as per IS-2296:1992 Class –'C'	Analysis Results			
					SW-1	SW-2	SW-3	SW-4
1	pH at 250C	APHA 4500H+ B	--	6.0-9.0	7.16	6.85	6.74	7.05
2	Temperature	APHA 2550 B	^{0}C	--	25.9	26.2	26.8	25.9
3	Electrical Conductivity	APHA 2510 C	µS/cm	--	388	423	450	384
4	Turbidity	APHA 2130 B	NTU	--	2.4	5.1	7.8	4.9
5	Total Dissolved Solids	APHA 2540 C	mg/l	1500	202	211	223	196
6	Total Suspended Solids	APHA 2540 D	mg/l	--	68	75	89	90
7	Total Hardness (as CaCO3)	APHA 2340 C	mg/l	--	141	155	183	191
8	Total Alkalinity	APHA 2320 B	mg/l	--	50	45	45	55
9	Calcium (as Ca)	APHA 3500Ca B	mg/l	--	33.8	32.6	35.9	34.2
10	Magnesium (as Mg)	APHA 3500Mg B	mg/l	--	13.7	17.9	22.7	25.7
11	Oil &Grease	APHA 5520 B	mg/l	--	ND	ND	ND	ND
12	DO	APHA 4500 O-C	mg/l	4 (min)	5.1	4.6	4.8	4.5
13	BOD(3)days at 270c	APHA 5210 B	mg/l	3	1.2	1.4	1.5	1.1
14	Chemical Oxygen Demand as (COD)	APHA 5220 C	mg/l	--	3.6	4.0	4.5	3.0
15	Chloride (as Cl)	APHA 4500CI B	mg/l	600	45	37.5	50.0	35.0
16	Sulphate (as SO4)	APHA 4500 SO_4^{2-} E	mg/l	400	30.9	21.3	24.5	31.2
17	Fluoride (as F)	APHA 4500F- C	mg/l	1.5	0.33	0.30	0.35	0.62
18	Nitrate (as NO3)	APHA 4500 NO_3^- E	mg/l	50	1.28	1.33	1.50	1.48
19	Arsenic (as As)	APHA 3114 B	mg/l	0.2	<0.004	<0.004	<0.004	<0.004
20	Copper (as Cu)	APHA 3111 B,C	mg/l	1.5	<0.02	<0.02	<0.02	<0.02
21	Lead (as Pb)	APHA 3111 B,C	mg/l	0.1	<0.02	<0.02	<0.02	<0.02
22	Manganese (as Mn)	APHA 3500Mn B	mg/l	--	<0.03	<0.03	<0.03	<0.03
23	Iron (as Fe)	APHA 3500Fe. B	mg/l	0.5	0.41	0.34	0.39	0.45
24	Nickel	APHA 3111 B	mg/l	--	<0.01	<0.01	<0.01	<0.01
25	Chromium(as Cr)	APHA 3111 B	mg/l	--	<0.05	<0.05	<0.05	<0.05
26	Zinc (as Zn)	APHA 3111 B,C	mg/l	15	<0.01	<0.01	<0.01	<0.01
27	Mercury (as Hg)	APHA 3500 Hg	mg/l	--	<0.004	<0.004	<0.004	<0.004
28	Total Coliforms	APHA9221-B	MPN/100 ml	5000	330	390	470	310

Note: CL: Colourless, AL:Agreeable, UO: Unobjectionable, ND: Not detected.

Prepared by

Verified by

Visiontek Consultancy Services Pvt. Ltd.

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Microbiology Lab

Ref: VCSPL/23-24/TR-15497

Date: 05.07.2023

SURFACE WATER QUALITY ANALYSIS REPORT MAY-2023

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling location	:	SW-1: Hirakud Reservoir; SW-2: Kharjor nala upstream, SW-3: Kharjor nala downstream, SW-4: Mahanadi river upstream
3. Date of sampling	:	15.05.2023
4. Date of analysis	:	16.05.2023 TO 22.05.2023
5. Sample collected by	:	VCSPL Representative

Sl. No	Parameter	Testing Methods	Unit	Standards as per IS-2296:1992 Class –'C'	Analysis Results			
					SW-1	SW-2	SW-3	SW-4
1	pH at 250C	APHA 4500H+ B	--	6.0-9.0	7.33	7.45	7.70	7.31
2	Temperature	APHA 2550 B	^{0}C	--	25.6	25.9	26.7	26.2
3	Electrical Conductivity	APHA 2510 C	µS/cm	--	296	320	231	378
4	Turbidity	APHA 2130 B	NTU	--	2.0	5.8	8.0	5.1
5	Total Dissolved Solids	APHA 2540 C	mg/l	1500	152	160	219	193
6	Total Suspended Solids	APHA 2540 D	mg/l	--	55	49	70	65
7	Total Hardness (as CaCO3)	APHA 2340 C	mg/l	--	99	131	192	120
8	Total Alkalinity	APHA 2320 B	mg/l	--	40	70	95	55
9	Calcium (as Ca)	APHA 3500Ca B	mg/l	--	28.2	34.5	40.2	35.6
10	Magnesium (as Mg)	APHA 3500Mg B	mg/l	--	6.9	10.9	22.3	7.6
11	Oil &Grease	APHA 5520 B	mg/l	--	ND	ND	ND	ND
12	DO	APHA 4500 O-C	mg/l	4 (min)	5.0	4.5	5.1	4.8
13	BOD(3)days at 270c	APHA 5210 B	mg/l	3	1.0	1.4	1.2	1.1
14	Chemical Oxygen Demand as (COD)	APHA 5220 C	mg/l	--	3.0	4.3	3.6	3.1
15	Chloride (as Cl)	APHA 4500Cl B	mg/l	600	25	42.5	55	45
16	Sulphate (as SO4)	APHA 4500 SO_4^{2-} E	mg/l	400	18.1	19.7	24.6	34.1
17	Fluoride (as F)	APHA 4500F- C	mg/l	1.5	0.25	0.33	0.32	0.38
18	Nitrate (as NO3)	APHA 4500 NO_3^- E	mg/l	50	1.47	1.33	1.25	1.4
19	Arsenic (as As)	APHA 3114 B	mg/l	0.2	<0.004	<0.004	<0.004	<0.004
20	Copper (as Cu)	APHA 3111 B,C	mg/l	1.5	<0.02	<0.02	<0.02	<0.02
21	Lead (as Pb)	APHA 3111 B,C	mg/l	0.1	<0.02	<0.02	<0.02	<0.02
22	Manganese (as Mn)	APHA 3500Mn B	mg/l	--	<0.03	<0.03	<0.03	<0.03
23	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.5	0.35	0.25	0.43	0.35
24	Nickel	APHA 3111 B	mg/l	--	<0.01	<0.01	<0.01	<0.01
25	Chromium(as Cr)	APHA 3111 B	mg/l	--	<0.05	<0.05	<0.05	<0.05
26	Zinc (as Zn)	APHA 3111 B,C	mg/l	15	<0.01	<0.01	<0.01	<0.01
27	Mercury (as Hg)	APHA 3500 Hg	mg/l	--	<0.004	<0.004	<0.004	<0.004
28	Total Coliforms	APHA9221-B	MPN/100 ml	5000	150	210	320	210

Note: CL: Colourless, AL:Agreeable, U/O: Unobjectionable, ND: Not detected.

Prepared By:

Verified By:

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

Ref: VCSPL/23-24/TR-15479

Date:05.01.2024

SURFACE WATER QUALITY ANALYSIS REPORT NOVEMBER-2023

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling location	:	SW-1: Hirakud Reservoir; SW-2: Kharjor nala upstream, SW-3: Kharjor nala downstream, SW-4: Mahanadi river upstream
3. Date of sampling	:	14.11.2023
4. Date of analysis	:	15.11.2023 TO 21.11.2023
5. Sample collected by	:	VCSPL Representative

Sl. No	Parameter	Testing Methods	Unit	Standards as per IS-2296;1992 Class –'C'	Analysis Results			
					SW-1	SW-2	SW-3	SW-4
1	pH at 250C	APHA 4500H+ B	--	6.0-9.0	7.38	7.41	7.68	7.22
2	Temperature	APHA 2550 B	^{0}C	--	24.5	25.0	25.3	25.0
3	Electrical Conductivity	APHA 2510 C	µS/cm	--	287	315	220	368
4	Turbidity	APHA 2130 B	NTU	--	2.2	5.6	7.4	4.0
5	Total Dissolved Solids	APHA 2540 C	mg/l	1500	145	156	221	185
6	Total Suspended Solids	APHA 2540 D	mg/l	--	51	46	63	60
7	Total Hardness (as CaCO3)	APHA 2340 C	mg/l	--	94	122	180	113
8	Total Alkalinity	APHA 2320 B	mg/l	--	45	65	90	50
9	Calcium (as Ca)	APHA 3500Ca B	mg/l	--	26.3	32.8	38.9	32.4
10	Magnesium (as Mg)	APHA 3500Mg B	mg/l	--	6.9	9.7	20.1	7.8
11	Oil &Grease	APHA 5520 B	mg/l	--	ND	ND	ND	ND
12	DO	APHA 4500 O-C	mg/l	4 (min)	5.6	4.9	5.3	5.1
13	BOD(3)days at 270c	APHA 5210 B	mg/l	3	0.8	1.2	1.0	0.7
14	Chemical Oxygen Demand as (COD)	APHA 5220 C	mg/l	--	2.5	3.6	3.1	2.2
15	Chloride (as Cl)	APHA 4500Cl- B	mg/l	600	27.5	45.0	52.5	40
16	Sulphate (as SO4)	APHA 4500 SO_4^{2-} E	mg/l	400	16.3	18.9	25.6	32.8
17	Fluoride (as F)	APHA 4500F- C	mg/l	1.5	0.28	0.31	0.27	0.35
18	Nitrate (as NO3)	APHA 4500 NO_3^- E	mg/l	50	1.55	1.29	1.18	1.37
19	Arsenic (as As)	APHA 3114 B	mg/l	0.2	<0.004	<0.004	<0.004	<0.004
20	Copper (as Cu)	APHA 3111 B,C	mg/l	1.5	<0.02	<0.02	<0.02	<0.02
21	Lead (as Pb)	APHA 3111 B,C	mg/l	0.1	<0.02	<0.02	<0.02	<0.02
22	Manganese (as Mn)	APHA 3500Mn B	mg/l	--	<0.03	<0.03	<0.03	<0.03
23	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.5	0.33	0.28	0.40	0.36
24	Nickel	APHA 3111 B	mg/l	--	<0.01	<0.01	<0.01	<0.01
25	Chromium(as Cr)	APHA 3111 B	mg/l	--	<0.05	<0.05	<0.05	<0.05
26	Zinc (as Zn)	APHA 3111 B,C	mg/l	15	<0.01	<0.01	<0.01	<0.01
27	Mercury (as Hg)	APHA 3500 Hg	mg/l	--	<0.004	<0.004	<0.004	<0.004
28	Total Coliforms	APHA9221-B	MPN/100 ml	5000	220	200	360	240

Note: CL: Colourless, AL:Agreeable, UO: Unobjectionable, ND: Not detected.

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Ref: VCSPL/23-24/TR-15480

Date: 05.01.2024

SURFACE WATER QUALITY ANALYSIS REPORT NOVEMBER-2023

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling location	:	SW-5: Mahanadi river downstream; SW-6: Tarasinghpara Drain SW-7:Drain near work manager's bunglow, SW-8:Sambalpur distributary near ash pond
3. Date of sampling	:	14.11.2023
4. Date of analysis	:	15.11.2023 TO 21.11.2023
5. Sample collected by	:	VCSPL Representative

Sl. No	Parameter	Testing Methods	Unit	Standards as per IS-2296:1992 Class –'C'	Analysis Results			
					SW-1	SW-2	SW-3	SW-4
1	pH at 250C	APHA 4500H+ B	--	6.0-9.0	7.19	6.96	6.88	7.1
2	Temperature	APHA 2550 B	^{0}C	--	25.3	25.6	26.1	25.2
3	Electrical Conductivity	APHA 2510 C	µS/cm	--	390	411	442	373
4	Turbidity	APHA 2130 B	NTU	--	2.2	5.6	7.4	4.0
5	Total Dissolved Solids	APHA 2540 C	mg/l	1500	196	202	219	185
6	Total Suspended Solids	APHA 2540 D	mg/l	--	63	78	84	91
7	Total Hardness (as CaCO3)	APHA 2340 C	mg/l	--	134	150	176	184
8	Total Alkalinity	APHA 2320 B	mg/l	--	55	40	55	60
9	Calcium (as Ca)	APHA 3500Ca B	mg/l	--	31.3	30.9	34.5	32.6
10	Magnesium (as Mg)	APHA 3500Mg B	mg/l	--	13.6	17.7	21.8	24.9
11	Oil &Grease	APHA 5520 B	mg/l	--	ND	ND	ND	ND
12	DO	APHA 4500 O-C	mg/l	4 (min)	5.4	4.8	5.1	4.7
13	BOD(3)days at 270c	APHA 5210 B	mg/l	3	1.0	1.1	1.3	0.9
14	Chemical Oxygen Demand as (COD)	APHA 5220 C	mg/l	--	3.0	3.3	4.2	2.9
15	Chloride (as Cl)	APHA 4500Cl- B	mg/l	600	50	35.0	55.0	42.5
16	Sulphate (as SO4)	APHA 4500 SO_4^{2-} E	mg/l	400	35.4	18.8	23.6	29.5
17	Fluoride (as F)	APHA 4500F- C	mg/l	1.5	0.39	0.28	0.33	0.60
18	Nitrate (as NO3)	APHA 4500 NO_3^- E	mg/l	50	1.22	1.31	1.47	1.5
19	Arsenic (as As)	APHA 3114 B	mg/l	0.2	<0.004	<0.004	<0.004	<0.004
20	Copper (as Cu)	APHA 3111 B,C	mg/l	1.5	<0.02	<0.02	<0.02	<0.02
21	Lead (as Pb)	APHA 3111 B,C	mg/l	0.1	<0.02	<0.02	<0.02	<0.02
22	Manganese (as Mn)	APHA 3500Mn B	mg/l	--	<0.03	<0.03	<0.03	<0.03
23	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.5	0.40	0.32	0.38	0.42
24	Nickel	APHA 3111 B	mg/l	--	<0.01	<0.01	<0.01	<0.01
25	Chromium(as Cr)	APHA 3111 B	mg/l	--	<0.05	<0.05	<0.05	<0.05
26	Zinc (as Zn)	APHA 3111 B,C	mg/l	15	<0.01	<0.01	<0.01	<0.01
27	Mercury (as Hg)	APHA 3500 Hg	mg/l	--	<0.004	<0.004	<0.004	<0.004
28	Total Coliforms	APHA9221-B	MPN/100 ml	5000	320	330	410	260

Note: CL: Colourless, AL:Agreeable, U/O: Unobjectionable, ND: Not detected.

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Ref: VCSPL/23-24/TR-15495 **Date:05.07.2023**

GROUND WATER QUALITY ANALYSIS REPORT MAY-2023

1.	Name of Industry	:	**M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha**
2.	Sampling location	:	**GW-1:** Budhakanta Village; **GW-2:** Hindalco Colony; **GW-3:**Burla Town; **GW-4:** Alind Area
3.	Date of sampling	:	**15.04.2023**
4.	Date of analysis	:	**16.04.2023 TO 22.04.2023**
5.	Sample collected by	:	VCSPL Representative

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS -10500:2012 Amended on 2015 & 2018		Analysis Result			
				Acceptable Limit	Permissible Limit	GW-1	GW-2	GW-3	GW-4
1	pH Value at 25oC	APHA 4500H+ B	–	6.5-8.5	No Relaxation	7.12	7.25	7.20	7.11
2	Colour	APHA 2120 B,C	Hazen	5	15	CL	CL	CL	CL
3	Taste	APHA 2160 C	–	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	APHA 2150 B	–	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	APHA 2130 B	NTU	1	5	1.4	<1.0	<1.0	1.6
6	Total Dissolved Solids	APHA 2540 C	mg/l	500	2000	345	181	197	198
7	Total Hardness (as CaCO3)	APHA 2340 C	mg/l	200	600	183	135	149	122
8	Total Alkalinity	APHA 2320 B	mg/l	200	600	95	60	55	70
9	Calcium (as Ca)	APHA 3500Ca B	mg/l	75	200	39.8	26.5	27.9	33.8
10	Magnesium (as Mg)	APHA 3500Mg B	mg/l	30	100	20.3	16.7	19.3	9.1
11	Residual, free Chlorine	APHA 4500Cl B	mg/l	0.2	1	BDL	BDL	BDL	BDL
12	Boron (as B)	APHA 4500B, B	mg/l	2.4	No Relaxation	<0.1	<0.1	<0.1	<0.1
13	Chloride (as Cl)	APHA 4500Cl- B	mg/l	250	1000	27.5	30.0	27.5	35.0
14	Sulphate (as SO4)	APHA 4500 SO42- E	mg/l	200	400	10.9	8.7	6.3	7.1
15	Fluoride (as F)	APHA 4500F- C	mg/l	1.0	1.5	0.66	0.25	0.21	0.36
16	Nitrate (as NO3)	APHA 4500 NO3- E	mg/l	45	No Relaxation	4.8	3.3	2.5	2.8
17	Phenolic Compounds (as C6H5OH)	APHA 5530 B,D	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001
18	Cyanide (as CN)	APHA 4500 CN- C,D	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01
19	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	0.2	1.0	<0.2	<0.2	<0.2	<0.2
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.003	No Relaxation	<0.01	<0.01	<0.01	<0.01
21	Arsenic (as As)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.004	<0.004	<0.004	<0.004
22	Copper (as Cu)	APHA 3111 B,C	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02
23	Lead (as Pb)	APHA 3111 B,C	mg/l	0.01	No Relaxation	<0.02	<0.02	<0.02	<0.02
24	Manganese (as Mn)	APHA 3500Mn B	mg/l	0.1	0.3	<0.03	<0.03	<0.03	<0.03
25	Iron (as Fe)	APHA 3500Fe, B	mg/l	1	No Relaxation	0.60	0.32	0.37	0.35
26	Chromium (as Cr+6)	APHA 3500Cr B	mg/l	–	–	<0.01	<0.01	<0.01	<0.01
27	Selenium (as Se)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.001	<0.001	<0.001	<0.001
28	Zinc (as Zn)	APHA 3111 B,C	mg/l	5	15	<0.01	<0.01	<0.01	<0.01
29	Aluminium as(Al)	APHA 3500Al B	mg/l	0.03	0.2	<0.1	<0.1	<0.1	<0.1
30	Mercury (as Hg)	APHA 3500 Hg	mg/l	0.001	No Relaxation	<0.004	<0.004	<0.004	<0.004
31	Mineral Oil	APHA 5220 B	mg/l	0.5	No Relaxation	<0.001	<0.001	<0.001	<0.001
32	Pesticides	APHA 6630 B,C	mg/l	Absent	–	Absent	Absent	Absent	Absent
33	E.Coli	APHA 9221-F	MPN/ 100 ml	Shall not be detectable in any 100 ml sample	–	Absent	Absent	Absent	Absent
34	Poly Aromatic Hydrocarbon as PAH	APHA 6440 B	mg/l	0.0001	No relaxation	<0.002	<0.002	<0.002	<0.002

Note: CL: Colorless, AL: Agreeable, ND: Not Detected.

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&
Microbiology Lab

Ref: VCSPL/23-24/TR-15477 **Date: 05.01.2024**

GROUND WATER QUALITY ANALYSIS REPORT NOVEMBER-2023

1.	Name of Industry	:	**M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha**
2.	Sampling location	:	**GW-1:** Budhakanta Village; **GW-2**: Hindalco Colony; **GW-3:**Burla Town; **GW-4:** Alind Area
3.	Date of sampling	:	**14.11.2023**
4.	Date of analysis	:	**15.11.2023 TO 21.11.2023**
5.	Sample collected by	:	VCSPL Representative

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS -10500:2012 Amended on 2015 & 2018		Analysis Result			
				Acceptable Limit	Permissible Limit	GW-1	GW-2	GW-3	GW-4
1	pH Value at 250C	APHA 4500H+ B	--	6.5-8.5	No Relaxation	7.19	7.30	7.22	7.05
2	Colour	APHA 2120 B,C	Hazen	5	15	CL	CL	CL	CL
3	Taste	APHA 2160 C	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	APHA 2150 B	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	APHA 2130 B	NTU	1	5	1.6	<1.0	<1.0	1.3
6	Total Dissolved Solids	APHA 2540 C	mg/l	500	2000	318	167	191	186
7	Total Hardness (as CaCO3)	APHA 2340 C	mg/l	200	600	170	123	140	112
8	Total Alkalinity	APHA 2320 B	mg/l	200	600	90	65	70	80
9	Calcium (as Ca)	APHA 3500Ca B	mg/l	75	200	42.5	17.4	25.2	31.3
10	Magnesium (as Mg)	APHA 3500Mg B	mg/l	30	100	17.5	13.3	18.7	8.2
11	Residual, free Chlorine	APHA 4500Cl B	mg/l	0.2	1	BDL	BDL	BDL	BDL
12	Boron (as B)	APHA 4500B, B	mg/l	2.4	No Relaxation	<0.1	<0.1	<0.1	<0.1
13	Chloride (as Cl)	APHA 4500Cl- B	mg/l	250	1000	29.5	24.0	25.8	28.6
14	Sulphate (as SO4)	APHA 4500 SO42- E	mg/l	200	400	12.3	6.4	4.5	6.7
15	Fluoride (as F)	APHA 4500F- C	mg/l	1.0	1.5	0.68	0.20	0.24	0.33
16	Nitrate (as NO3)	APHA 4500 NO3- E	mg/l	45	No Relaxation	4.1	3.0	2.7	2.1
17	Phenolic Compounds (as C6H5OH)	APHA 5530 B,D	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001
18	Cyanide (as CN)	APHA 4500 CN- C,D	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01
19	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	0.2	1.0	<0.2	<0.2	<0.2	<0.2
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.003	No Relaxation	<0.01	<0.01	<0.01	<0.01
21	Arsenic (as As)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.004	<0.004	<0.004	<0.004
22	Copper (as Cu)	APHA 3111 B,C	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02
23	Lead (as Pb)	APHA 3111 B,C	mg/l	0.01	No Relaxation	<0.02	<0.02	<0.02	<0.02
24	Manganese (as Mn)	APHA 3500Mn B	mg/l	0.1	0.3	<0.03	<0.03	<0.03	<0.03
25	Iron (as Fe)	APHA 3500Fe, B	mg/l	1	No Relaxation	0.58	0.28	0.31	0.39
26	Chromium (as Cr+6)	APHA 3500Cr B	mg/l	--	--	<0.01	<0.01	<0.01	<0.01
27	Selenium (as Se)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.001	<0.001	<0.001	<0.001
28	Zinc (as Zn)	APHA 3111 B,C	mg/l	5	15	<0.01	<0.01	<0.01	<0.01
29	Aluminium as(Al)	APHA 3500Al B	mg/l	0.03	0.2	<0.1	<0.1	<0.1	<0.1
30	Mercury (as Hg)	APHA 3500 Hg	mg/l	0.001	No Relaxation	<0.004	<0.004	<0.004	<0.004
31	Mineral Oil	APHA 5220 B	mg/l	0.5	No Relaxation	<0.001	<0.001	<0.001	<0.001
32	Pesticides	APHA 6630 B,C	mg/l	Absent	--	Absent	Absent	Absent	Absent
33	E.Coli	APHA 9221-F	MPN/ 100 ml	Shall not be detectable in any 100 ml sample	--	Absent	Absent	Absent	Absent
34	Poly Aromatic Hydrocarbon as PAH	APHA 6440 B	mg/l	0.0001	No relaxation	<0.002	<0.002	<0.002	<0.002

Note: CL: Colorless, AL: Agreeable, ND: Not Detected.

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Ref: VCSPL/23-24/TR-15478 **Date: 05.01.2024**

GROUND WATER QUALITY ANALYSIS REPORT NOVEMBER-2023

6.	Name of Industry	:	**M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha**
7.	Sampling location	:	**GW-5:** Nuajamuda Village; **GW-6**: Near Sludge disposal Area; **GW-7:**Garmunda Village; **GW-8:** Larbanga Village
8.	Date of sampling	:	**14.11.2023**
9.	Date of analysis	:	**15.11.2023 TO 21.11.2023**
10.	Sample collected by	:	VCSPL Representative

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS -10500:2012 Amended on 2015 & 2018		Analysis Result			
				Acceptable Limit	Permissible Limit	GW-5	GW-6	GW-7	GW-8
1	pH Value at 250C	APHA 4500H+ B	–	6.5-8.5	No Relaxation	7.10	6.83	7.22	7.34
2	Colour	APHA 2120 B, C	Hazen	5	15	CL	CL	CL	CL
3	Taste	APHA 2160 C	–	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	APHA 2150 B	–	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Turbidity	APHA 2130 B	NTU	1	5	1.2	2.1	<1.0	1.3
6	Total Dissolved Solids	APHA 2540 C	mg/l	500	2000	204	318	185	154
7	Total Hardness (as CaCO3)	APHA 2340 C	mg/l	200	600	118	182	182	93
8	Total Alkalinity	APHA 2320 B	mg/l	200	600	92	89	86	96
9	Calcium (as Ca)	APHA 3500Ca B	mg/l	75	200	28.3	40.9	26.2	30.2
10	Magnesium (as Mg)	APHA 3500Mg B	mg/l	30	100	11.5	19.4	12.5	4.3
11	Residual, free Chlorine	APHA 4500Cl, B	mg/l	0.2	1	BDL	BDL	BDL	BDL
12	Boron (as B)	APHA 4500B, B	mg/l	2.4	No Relaxation	<0.1	<0.1	<0.1	<0.1
13	Chloride (as Cl)	APHA 4500Cl- B	mg/l	250	1000	25.6	28.2	24.3	30.5
14	Sulphate (as SO4)	APHA 4500 SO42- E	mg/l	200	400	4.6	5.1	4.8	4.2
15	Fluoride (as F)	APHA 4500F- C	mg/l	1.0	1.5	0.33	0.28	0.26	0.31
16	Nitrate (as NO3)	APHA 4500 NO3- E	mg/l	45	No Relaxation	2.6	3.0	3.2	2.9
17	Phenolic Compounds (as C6H5OH)	APHA 5530 B,D	mg/l	0.001	0.002	<0.001	<0.001	<0.001	<0.001
18	Cyanide (as CN)	APHA 4500 CN- C,D	mg/l	0.05	No Relaxation	<0.01	<0.01	<0.01	<0.01
19	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	0.2	1.0	<0.2	<0.2	<0.2	<0.2
20	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.003	No Relaxation	<0.01	<0.01	<0.01	<0.01
21	Arsenic (as As)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.004	<0.004	<0.004	<0.004
22	Copper (as Cu)	APHA 3111 B,C	mg/l	0.05	1.5	<0.02	<0.02	<0.02	<0.02
23	Lead (as Pb)	APHA 3111 B,C	mg/l	0.01	No Relaxation	<0.02	<0.02	<0.02	<0.02
24	Manganese (as Mn)	APHA 3500Mn B	mg/l	0.1	0.3	<0.03	<0.03	<0.03	<0.03
25	Iron (as Fe)	APHA 3500Fe, B	mg/l	1	No Relaxation	0.16	0.21	0.15	0.19
26	Chromium (as Cr+6)	APHA 3500Cr B	mg/l	–	–	<0.01	<0.01	<0.01	<0.01
27	Selenium (as Se)	APHA 3114 B	mg/l	0.01	No Relaxation	<0.001	<0.001	<0.001	<0.001
28	Zinc (as Zn)	APHA 3111 B,C	mg/l	5	15	<0.01	<0.01	<0.01	<0.01
29	Aluminium as(Al)	APHA 3500Al B	mg/l	0.03	0.2	<0.1	<0.1	<0.1	<0.1
30	Mercury (as Hg)	APHA 3500 Hg	mg/l	0.001	No Relaxation	<0.004	<0.004	<0.004	<0.004
31	Mineral Oil	APHA 5520 B	mg/l	0.5	No Relaxation	<0.001	<0.001	<0.001	<0.001
32	Pesticides	APHA 6630 B,C	mg/l	Absent	–	Absent	Absent	Absent	Absent
33	E.Coli	APHA 9221-F	MPN/ 100 ml	Shall not be detectable in any 100 ml sample	–	Absent	Absent	Absent	Absent
34	Poly Aromatic Hydrocarbon as PAH	APHA 6440 B	mg/l	0.0001	No relaxation	<0.002	<0.002	<0.002	<0.002

Note: CL: Colorless, AL: Agreeable, ND: Not Detected.

Prepared By

Verified By

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

Ref: VCSPL/23-24/TR-15500 **Date: 05.07.2023**

FORAGE FLUORIDE ANALYSIS REPORT MAY-2023

1	Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2	Date of Sampling	:	15.05.2023 & 16.05.2023
3	Date of Analysis	:	16.05.2023 TO 22.05.2023
4	Name of the Sample	:	Vegetation Sample
5	Sample Collected By	:	VCSPL Representative

Date of Sampling	Name of the Location	Type of Species	Scientific Name	Method of Analysis	Result (PPM)
15.05.2023	Nuajamudi	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	5.1
15.05.2023	IDC Area	Karanj Tree	*Pongame oil tree*	AOAC 975.04	3.8
15.05.2023	Gandhinagar	Pokasunga	*Ageratum Conyzoides*	AOAC 975.04	3.5
15.05.2023	Nauagujatal	Pokasunga	*Ageratum Conyzoides*	AOAC 975.04	4.9
15.05.2023	Dengimacha	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	3.9
16.05.2023	Larpark(RITI)	Pedi-Pedika	*Abutilon indicum*	AOAC 975.04	2.8
16.05.2023	Silipathar	Pedi-Pedika	*Abutilon indicum*	AOAC 975.04	2.5
16.05.2023	Natadhi	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	4.0
16.05.2023	Biharipada	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	2.0
16.05.2023	Sahajbhal	Karanj Tree	*Pongame oil tree*	AOAC 975.04	1.9

VISIONTEK CONSULTANCY SERVICES PVT. LTD.
Prepared by:

VISIONTEK CONSULTANCY SERVICES PVT. LTD.
Verified by:

Ref: VCSPL/23-24/TR- 15483 **Date: 05.01.2024**

FORAGE FLUORIDE ANALYSIS REPORT NOVEMBER-2023

1	Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2	Date of Sampling	:	22.11.2023 & 23.11.2023
3	Date of Analysis	:	24.11.2023 to 27.11.2023
4	Name of the Sample	:	Vegetation Sample
5	Sample Collected By	:	VCSPL Representative

Date of Sampling	Name of the Location	Type of Species	Scientific Name	Method of Analysis	Result (PPM)
22.11.2023	Nuajamudi	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	4.9
22.11.2023	IDC Area	Karanj Tree	*Pongame oil tree*	AOAC 975.04	3.6
22.11.2023	Gandhinagar	Pokasunga	*Ageratum Conyzoides*	AOAC 975.04	3.1
22.11.2023	Nauagujatal	Pokasunga	*Ageratum Conyzoides*	AOAC 975.04	4.2
22.11.2023	Dengimacha	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	3.6
23.11.2023	Larpark(RITI)	Pedi-Pedika	*Abutilon indicum*	AOAC 975.04	2.1
23.11.2023	Silipathar	Pedi-Pedika	*Abutilon indicum*	AOAC 975.04	2.2
23.11.2023	Natadhi	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	3.8
23.11.2023	Biharipada	Duba Ghasa	*Cynodon dactylon*	AOAC 975.04	1.8
23.11.2023	Sahajbhal	Karanj Tree	*Pongame oil tree*	AOAC 975.04	1.6

Prepared by:

Verified by:

Annexure-III

1. **FUGITIVE EMISSION (Pot room): Total Fluoride:** **Standard: 0.4 kg/MT. Al.**

Location of sampling	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
85 KA Line (avg.)	0.32	0.32	0.31	0.30	0.31	0.31
235 KA Line (avg.)	0.31	0.32	0.31	0.32	0.31	0.29

ANNEXURE – IV

1. ETP & STP TREATED WATER ANALYSIS REPORT:

(a) The treated water quality after treatment in the Effluent Treatment Plant (ETP outlet) was monitored. The values were as follows: (by NABL approved External Lab)

(i) ETP (R&D back side) 250 KLD outlet Water quality

Sl. No.	Parameter	Unit	Limit	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
1	pH	-	6.5-9.0	8.21	6.53	6.66	8.36	8.36	7.13
2	TSS	mg/L	100	BDL	BDL	BDL	11.0	BDL	BDL
3	TDS	mg/L	2100	41.5	23.0	16.0	39.0	14.0	21.0
4	Fluoride	mg/L	2.0	BDL	0.22	BDL	BDL	BDL	0.12
5	OIL & GREASE	mg/L	10.0	BDL	BDL	BDL	BDL	BDL	BDL
6	BOD	mg/L	30	BDL	BDL	BDL	BDL	BDL	BDL
7	COD	mg/L	250.0	BDL	BDL	BDL	BDL	BDL	BDL
8	Chromium hexavalent	mg/L	0.1	BDL	BDL	BDL	BDL	BDL	BDL
9	Cyanide	mg/L	0.2	BDL	BDL	BDL	BDL	BDL	BDL
10	Free ammonia	mg/L	5.0	BDL	BDL	BDL	BDL	BDL	BDL
11	Total Nitrogen	mg/L	100.0	BDL	BDL	0.74	BDL	BDL	BDL
12	Total Chromium	mg/L	2.0	BDL	0.47	BDL	BDL	BDL	BDL

(i) ETP (CPP side) 350 KLD

Sl. No.	Parameter	Unit	Limit	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
1	pH	-	6.5-9.0	8.09	6.56	6.57	7.32	7.29	7.89
2	TSS	mg/L	100	BDL	BDL	BDL	9.0	BDL	BDL
3	TDS	mg/L	2100	58.5	25.0	16.0	13.0	10.0	56.0
4	Fluoride	mg/L	2.0	BDL	0.23	BDL	BDL	BDL	0.27
5	OIL & GREASE	mg/L	10.0	BDL	BDL	BDL	BDL	BDL	BDL
6	BOD	mg/L	30	BDL	BDL	BDL	BDL	BDL	BDL
7	COD	mg/L	250	BDL	BDL	BDL	BDL	BDL	BDL
8	Chromium hexavalent	mg/L	0.1	BDL	BDL	BDL	BDL	BDL	BDL
9	Cyanide	mg/L	0.2	BDL	BDL	BDL	BDL	BDL	BDL
10	Free ammonia	mg/L	5.0	BDL	BDL	BDL	BDL	BDL	BDL
11	Total Nitrogen	mg/L	100	0.96	0.79	0.92	0.79	0.79	0.88
12	Total Chromium	mg/L	2.0	BDL	BDL	BDL	BDL	BDL	BDL

(ii) ETP (80 Pot Area) 50 KLD

Sl. No.	Parameter	Unit	Limit	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
1	pH	-	6.5-9.0	7.77	6.51	8.06	8.41	7.82	7.61
2	TSS	mg/L	100	BDL	BDL	BDL	BDL	BDL	BDL
3	TDS	mg/L	2100	15.2	17.0	22.0	21.0	8.0	36.0
4	Fluoride	mg/L	2.0	BDL	BDL	BDL	BDL	BDL	0.31
5	OIL & GREASE	mg/L	10.0	BDL	BDL	BDL	BDL	BDL	BDL
6	BOD	mg/L	30	BDL	BDL	BDL	BDL	BDL	BDL
7	COD	mg/L	250	3.8	BDL	BDL	BDL	BDL	BDL
8	Chromium hexavalent	mg/L	0.1	BDL	BDL	BDL	BDL	BDL	BDL
9	Cyanide	mg/L	0.2	BDL	BDL	BDL	BDL	BDL	BDL
10	Free ammonia	mg/L	5.0	BDL	BDL	BDL	BDL	BDL	BDL
11	Total Nitrogen	mg/L		0.96	0.89	0.89	0.84	0.74	0.94
12	Total Chromium	mg/L		BDL	BDL	BDL	BDL	BDL	BDL

(b) Domestic effluent after treatment in Sewage Treatment Plant (STP Outlet) was monitored. The values were as follows:

(ii) Plant STP (CPP side) 500 KLD

Sl. No.	Parameter	Unit	Limit	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
1	pH	-	6.5-9.0	7.25	7.01	7.03	6.96	6.96	6.77
2	TSS	mg/L	100.0	12.0	5.0	8.0	20.0	20.0	14.0
3	BOD	mg/L	30	BDL	2.8	3.6	2.9	2.9	20.0
4	Fecal Coliform (FC)	MPN / 100 ml	1000 (max)	110.0	97.0	98.0	190.0	190.0	96.0

(iii) Plant STP (CPP side) 300 KLD

Sl. No.	Parameter	Unit	Limit	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
1	pH	-	6.5-9.0	7.84	6.72	6.18	7.46	6.98	6.79
2	TSS	mg/L	100.0	4.0	15.0	11.0	19.0	18.0	10.0
3	BOD	mg/L	30	9.2	16.0	2.8	6.4	4.8	18.0
4	Fecal Coliform (FC)	MPN / 100 ml	1000 (max)	270.0	310.0	340.0	310.0	420.0	390.0

(iv) Plant STP (80 Pot area) 100 KLD

Sl. No.	Parameter	Unit	Limit	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
1	pH	-	6.5-9.0	7.98	7.36	7.36	8.26	7.92	7.40
2	TSS	mg/L	100.0	8.0	6.0	18.0	6.4	4.0	10.0
3	BOD	mg/L	30	8.8	5.6	BDL	2.2	18.0	23.0
4	Fecal Coliform (FC)	MPN / 100 ml	1000 (max)	220.0	260.0	240.0	270.0	340.0	310.0

(v) Colony STP (Main Colony) 400 KLD

Sl. No.	Parameter	Unit	Limit	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24
1	pH	-	6.5-9.0	8.02	6.55	8.40	7.40	7.04	7.89
2	TSS	mg/L	100.0	42.0	14.0	BDL	6.0	41.0	33.0
3	BOD	mg/L	30	17.0	15.4	2.5	BDL	22.0	25.0
4	Fecal Coliform (FC)	MPN / 100 ml	1000 (max)	430.0	410.0	280.0	410.0	470.0	270.0

TREATED EFFLUENT (CMB) WATER ANALYSIS REPORT
(October 2023 - March 2024)

Sl. No	PARAMETERS	Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24
1	Color & Odour	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless
2	pH at 25^0C	7.27	7.19	7.28	7.23	7.18	7.23
3	Turbidity	3.4	3.1	3.4	3.1	3.5	3.2
4	Total Suspended Solids (as TSS)	75.0	72.0	69.0	65.0	59.0	62.0
5	Total Dissolved Solids (as TDS)	554	563	549	538	547	539
6	Oil & Grease (as O & G)	4.8	4.0	3.6	3.2	3.8	3.5
7	Total Residual Chloride	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)
8	Ammonical Nitrogen (as NH_3-N)	1.43	1.29	1.18	1.2	1.6	1.4
9	Total Kjeldahl Nitrogen (as N)	3.2	3.8	4.2	4.8	5.2	5.0
10	Free Ammonia (as NH_3)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
11	Biochemical Oxygen Demand as BOD(3days at 27^0 C)	7.0	6.8	6.4	6.9	7.4	7.1
12	Chemical Oxygen Demand (as COD)	25.0	24.0	26.0	28.0	32.0	28.0
13	Arsenic (as As)	BDL(0.003)	BDL(0.003)	BDL(0.003)	BDL(0.003)	BDL(0.003)	BDL(0.003)
14	Mercury (as Hg)	BDL(0.001)	BDL(0.001)	BDL(0.001)	BDL(0.001)	BDL(0.001)	BDL(0.001)
15	Lead (as Pb)	BDL(0.0007)	BDL(0.0007)	BDL(0.0007)	BDL(0.0007)	BDL(0.0007)	BDL(0.0007)
16	Cadmium (as Cd)	BDL(0.0003)	BDL(0.0003)	BDL(0.0003)	BDL(0.0003)	BDL(0.0003)	BDL(0.0003)
17	Hexavalent Chromium (as Cr^{+6})	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)

18	Total Chromium (as Cr)	BDL(0.011)	BDL(0.011)	BDL(0.011)	BDL(0.011)	BDL(0.011)	BDL(0.011)
19	Copper (as Cu)	BDL(0.006)	BDL(0.006)	BDL(0.006)	BDL(0.006)	BDL(0.006)	BDL(0.006)
20	Zinc (as Zn)	BDL(0.008)	BDL(0.008)	BDL(0.008)	BDL(0.008)	BDL(0.008)	BDL(0.008)
21	Selenium (as Se)	BDL(0.0002)	BDL(0.0002)	BDL(0.0002)	BDL(0.0002)	BDL(0.0002)	BDL(0.0002)
22	Nickel (as Ni)	BDL(0.005)	BDL(0.005)	BDL(0.005)	BDL(0.005)	BDL(0.005)	BDL(0.005)
23	Cyanide (as CN)	BDL(0.01)	BDL(0.01)	BDL(0.01)	BDL(0.01)	BDL(0.01)	BDL(0.01)
24	Fluoride (as F)	0.82	0.79	0.81	0.78	0.75	0.72
25	Dissolved phosphate (as P)	1.58	1.47	1.39	1.43	1.36	1.40
26	Sulphide (as S)	BDL(0.03)	BDL(0.03)	BDL(0.03)	BDL(0.03)	BDL(0.03)	BDL(0.03)
27	Phenolic Compound (as C_6H_5OH)	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)	BDL(0.02)
28	Manganese (as Mn)	BDL(0.004)	BDL(0.004)	BDL(0.004)	BDL(0.004)	BDL(0.004)	BDL(0.004)
29	Iron (as Fe)	0.79	0.80	0.79	0.81	0.78	0.75
30	Vanadium (as V)	BDL(0.005)	BDL(0.005)	BDL(0.005)	BDL(0.005)	BDL(0.005)	BDL(0.005)
31	Nitrate Nitrogen (as NO_3-N)	2.4	2.1	2.5	2.2	2.31	2.45
32	Bio- assay Test	All fishes survive after 96 hrs in 100% effluent	All fishes survive after 96 hrs in 100% effluent	All fishes survive after 96 hrs in 100% effluent	All fishes survive after 96 hrs in 100% effluent	All fishes survive after 96 hrs in 100% effluent	All fishes survive after 96 hrs in 100% effluent

ANNEXURE - V

STATUS OF UTILISATION OF COAL ASH (FLY ASH) for the period: 2023-24

Annexure

Sl. No.	Name and address of the unit	Month	Power plant installed capacity (MW)	Quantity of coal consumed during the reporting period (MT)	Quantity of fly ash generated (MT)	Capacity of dry fly ash storage silos (MT)	Disposal Method (Dry/HCSD/Lean)	Modes of Utilisation (MT): Fly ash based products (bricks, tiles, blocks, fibre, cement sheets, pipes, boards)	Cement manufacturing	Ready mix concrete	Ash and Geo-Polymer based construction material	[illegible] of [illegible] or coal mines	Construction of Roads/Road and fly over embankment	Construction of Dams	Filling of low lying areas	Filling of mine voids	[illegible] Overburden dump	Agriculture use	Construction of shoreline protection structures	Export of ash to other countries	Others	Ash utilised for the reporting period (MT)	% of Ash utilised for the reporting period	Remarks
1	HINDALCO INDUSTRIES LIMITED, HIRAKUD POWER	Apr-23	467.50	310850.33	81613.43	6500.00	Dry	37797.22	12619.76	0.00	0.00	0.00	10895.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81612.79	100.00	
2		May-23	467.50	272086.34	90341.11	6500.00	Dry	70334.43	13051.90	0.00	0.00	0.00	4550.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90741.42	100.00	
3		Jun-23	467.50	225399.21	87165.03	6500.00	Dry	48075.09	15133.08	0.00	0.00	0.00	28535.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87160.74	100.00	
4		Jul-23	467.50	234224.34	93367.07	6500.00	Dry	41284.14	9970.23	0.00	0.00	0.00	23261.34	0.00	10848.87	0.00	0.00	0.00	0.00	0.00	0.00	93568.20	100.00	
5		Aug-23	467.50	235346.20	89587.10	6500.00	Dry	44536.44	9548.12	0.00	0.00	0.00	14256.39	0.00	23830.75	0.00	0.00	0.00	0.00	0.00	0.00	89591.33	100.01	
6		Sep-23	467.50	251434.28	83837.30	6500.00	Dry	48540.93	8745.73	0.00	0.00	0.00	11460.01	0.00	14731.92	0.00	0.00	0.00	0.00	0.00	0.00	85510.41	100.24	
7		Oct-23	467.50	235695.43	85560.11	6500.00	Dry	37230.20	7394.41	0.00	0.00	0.00	34498.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81091.03	100.14	
8		Nov-23	467.50	256454.25	75297.73	6500.00	Dry	57431.09	3809.09	0.00	0.00	0.00	13129.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75499.91	100.27	
9		Dec-23	467.50	251217.18	71240.37	6500.00	Dry	70784.07	8464.73	0.00	0.00	0.00	14841.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91313.10	100.09	
10		Jan-24	467.50	234664.70	89732.00	6500.00	Dry	43722.09	2849.85	0.00	0.00	0.00	20841.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89021.80	100.70	
11		Feb-24	467.50	257309.24	89070.01	6500.00	Dry	51305.00	3360.87	0.00	0.00	0.00	24199.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85574.22	100.01	
12		Mar-24	467.50	231223.47	84619.30	6500.00	Dry	56143.00	4805.76	0.00	0.00	0.00	23092.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84801.22	100.00	
		Total		2951312.83	1056454.21			444434.74	96462.33	0.00	0.00	0.00	238448.27	0.00	54421.74	0.00	0.00	0.00	0.00	0.00	0.00	1027767.12	100.13	

Annexure-II

STATUS OF UTILISATION OF COAL ASH (BOTTOM ASH) for the period - 2023-24

Sl. No.	Name and address of the unit	Month	Power plant installed capacity (MW)	Quantity of coal consumed during the reporting period (MT)	Quantity of Bottom Ash generated (MT)	Capacity of Bottom ash storage silos (MT)	Disposal Method (Dry/ HCSD /Lean)	Modes of Utilisation (MT): Fly ash based products (bricks, tiles, blocks, fibre, cement sheets, pipes, boards, panels etc.)	Cement Manufacturing	Ready mix concrete	Ash and Geo-Polymer based construction material	Manufacturing of sintered or cold bonded ash Aggregates	Construction of Roads/Road and fly over embankment	Construction of Dams	Filling of low lying areas	Filling of mine voids	Use Overburden dumps	Agriculture	Construction of shoreline protection structures in coastal districts	Export of ash to other countries	Others	Ash utilised for the reporting period (MT)	% of Ash utilised for the reporting period (MT)	Remarks
1		Apr-23	467.5	210853.55	9001.49	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	2279.91	0.00	6721.58	0.00	0.00	0.00	0.00	0.00	0.00	9001.49	100.00	
2		May-23	467.5	223888.59	9815.99	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	8340.15	0.00	1475.84	0.00	0.00	0.00	0.00	0.00	0.00	9815.99	100.00	
3		Jun-23	467.5	220368.21	9684.23	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	8509.53	0.00	1174.70	0.00	0.00	0.00	0.00	0.00	0.00	9684.23	100.00	
4		Jul-23	467.5	234034.24	10374.12	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10374.12	0.00	0.00	0.00	0.00	0.00	0.00	10374.12	100.00	
5		Aug-23	467.5	233548.30	9954.12	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9954.12	0.00	0.00	0.00	0.00	0.00	0.00	9954.12	100.00	
6	HINDALCO INDUSTRIES LIMITED, HIRAKUD POWER	Sep-23	467.5	221456.28	9256.34	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9256.34	0.00	0.00	0.00	0.00	0.00	0.00	9256.34	100.00	
7		Oct-23	467.5	220595.63	8995.57	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	8826.48	0.00	169.09	0.00	0.00	0.00	0.00	0.00	0.00	8995.57	100.00	
8		Nov-23	467.5	206454.05	8366.42	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	7812.67	0.00	553.75	0.00	0.00	0.00	0.00	0.00	0.00	8366.42	100.00	
9		Dec-23	467.5	231077.18	10145.60	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	10145.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10145.6	100.0	
10		Jan-24	467.5	226486.99	9858.00	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	9858.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9858.0	100.0	
11		Feb-24	467.5	207309.04	8952.23	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	8952.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8952.2	100.0	
12		Mar-24	467.5	221223.47	9646.59	5200.00	Dry	0.00	0.00	0.00	0.00	0.00	9646.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9646.6	100.0	
		Total		**2656312.63**	**114050.69**			**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**74371.16**	**0.00**	**39679.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**114050.69**	**100.00**	

STATUS OF UTILISATION OF COAL ASH (Total Ash) for the period -2023-24

Sl. No.	Name and address of the unit	Month	Power plant installed capacity (MW)	Quantity of coal consumed during the reporting period (MT)	Quantity of Total Ash generated (MT)	Capacity of Bottom ash storage silos (MT)	Disposal Method (Dry/ HCSD /Lean sl.)	Modes of Utilisation (MT): Fly ash based products (Bricks, tiles, blocks, fibre, cement sheets)	Cement Manufacturing	Ready mix concrete	Ash and Geo-Polymer based	Mon ulact wing of sinter ed or cold	Construction of Roads/Road and fly over embankment	Construction of Dams	Filling of low lying areas	Filling of mine voids	Dec Over burden dumps	Agriculture	Construction of shoreline protection structures in coastal	Export of ash to other countries	Others	Ash utilised for the reporting period (MT)	% of Ash utilised for the reporting period (MT)	Remarks
1	HINDALCO INDUSTRIES LIMITED, HIRAKUD POWER	Apr-23	467.5	210850.55	90014.92	5200	Dry	57797.22	10619.74	0.00	0.00	0.00	12875.12	0.00	6721.58	0.00	0.00	0.00	0.00	0.00	0.00	90013.68	100.00	
2		May-23	467.5	220888.57	98159.90	5200	Dry	70584.43	13201.00	0.00	0.00	0.00	12931.13	0.00	1475.84	0.00	0.00	0.00	0.00	0.00	0.00	98162.42	100.00	
3		Jun-23	467.5	220388.21	96842.26	5200	Dry	48375.59	10133.88	0.00	0.00	0.00	37140.80	0.00	1174.70	0.00	0.00	0.00	0.00	0.00	0.00	96844.97	100.00	
4		Jul-23	467.5	234034.24	103741.19	5200	Dry	41284.14	9970.23	0.00	0.00	0.00	23261.96	0.00	29222.99	0.00	0.00	0.00	0.00	0.00	0.00	103739.32	100.00	
5		Aug-23	467.5	233548.30	99541.22	5200	Dry	44536.64	7948.12	0.00	0.00	0.00	14256.39	0.00	30805.07	0.00	0.00	0.00	0.00	0.00	0.00	99546.24	100.01	
6		Sep-23	467.5	221456.28	92563.36	5200	Dry	48542.93	8765.73	0.00	0.00	0.00	11480.03	0.00	23978.26	0.00	0.00	0.00	0.00	0.00	0.00	92766.95	100.22	
7		Oct-23	467.5	220893.63	89955.72	5200	Dry	37235.32	7394.49	0.00	0.00	0.00	45266.17	0.00	149.09	0.00	0.00	0.00	0.00	0.00	0.00	93065.07	100.13	
8		Nov-23	467.5	206454.05	83664.17	5200	Dry	57431.59	5839.09	0.00	0.00	0.00	20041.90	0.00	553.75	0.00	0.00	0.00	0.00	0.00	0.00	83866.33	100.24	
9		Dec-23	467.5	231077.18	101455.97	5200	Dry	70786.57	3664.72	0.00	0.00	0.00	27007.49	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	101458.78	100.00	
10		Jan-24	467.5	226486.99	98580.00	5200	Dry	63722.39	5949.58	0.00	0.00	0.00	30707.93	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	99379.00	100.81	
11		Feb-24	467.5	207309.04	89523.28	5200	Dry	51005.00	5387.87	0	0	0	33151.56	0	0	0	0	0	0	0	0	89526.45	100.00	
12		Mar-24	467.5	221223.47	96465.91	5200	Dry	54163.00	5605.78	0	0	0	34699.03	0	0	0	0	0	0	0	0	96467.81	100.00	
		Total		26,54,312.53	11,40,506.90			6,46,434.76	96,462.25	0.00	0.00	0.00	3,05,839.53	0.00	94,101.28	0.00	0.00	0.00	0.00	0.00	0.00	11,41,837.81	100.12	

Annexure –VI

PLANTATION DETAILS

YEAR	NO. OF SAPLINGS PLANTED	AREA COVERED (ACRE)	SPECIES PLANTED
Up to 2006 – 07	419865	250.12	
2007 – 08	33,000	12.0	Chakunda, Gambhari, Sisam, Krushna Chuda, Radha Chuda, Jammun & Neam
2008 – 09	25,200	16.0	Chakunda, Gambhari, Sisam, Krushna Chuda, Radha Chuda, Jammun & Neam
2009 – 10	31,000	10.0	Chakunda, Gambhari, Sisam, Krushna Chuda, Radha Chuda, Jammun & Neam
2010 – 11	30,000	10.0	Chakunda, Gambhari, Sisam, Krushna Chuda, Radha Chuda, Jammun & Neam
2011 – 12	25,200	10.0	Chakunda, Gambhari, Sisam, Krushna Chuda, Radha Chuda, Jammun & Neam
2012 – 13	25000	10.0	Neam, Karanja, Sisam, Krushna Chuda, Radha Chuda, Cassia Fistula, Alstonia & Kadamba
2013 – 14	30000	13.0	Neem, Karanja, Sisam, Cassia Fistula, Alstonia, Kadamba, Mango, Jamun etc
2014 – 15	12000	6.0	Neem, Karanja, Sisam, Cassia Fistula, Alstonia, Kadamba, Mango, Jamun etc
2015 – 16	10000	5.0	Bamboo, Sisoo, Karanja, Alstonia, Chhatiana, Mango, Jamun etc
2016 – 17	21175	10.6	Bamboo, Ficus, Alstonia, Champa, Plumeria Alva etc
2017 – 18	13500	6.75	Krushnachuda, Radhachuda, Acassia, Ficus, Jamun, Arjun, Ashok etc
2018 - 19	10500	5.25	Bamboo, Sisam, Cassia Fistula, Alstonia, Kadamba, Mango, Jamun
2019 - 20	8400	4.2	Alstonia, Champa Bamboo, Sisam, Alstonia, Kadamba, Mango, Jamun
2020 - 21	1058	0.5	Arjun, Radhachuda, Krushnachuda, Jamun,Ficus, Debdaru, Baula
2021-22	1550	0.75	Baula , Arjun , Jamun. Debadaru, Krushnachuda, jamun, mango,
2022-23	**500**	**5 Acre**	Mango, Drumstick, Papaya, Jackfruit, Brinjal, Chilly, Cauliflower, cabbage, Cucumber, Pumpkin, Spinach, Beans, Bottle Guard.
2023-24	**10,000**	**10 Acre**	Arjun,Kadam,Mango,Guava,Jamun,Jackfruit,Neem,Pipal,Custadapple,Kintho,IndianBele,Sishu, Kajubadam,Lagerstromia,Karanj,Gulabi siris,Badam,Mehegani,Saal,Sunari,Tetel,Kathabadam,Ashok
Total	**707448**	**380.17***	

* Including replenished and outside factory areas as part of CSR initiatives

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Certified for : ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

Accredited by : NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study
- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy
- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15486 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1.	Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2.	Sampling Location	:	Monitoring Station No.- AAQMS-1 : Plant Site
3.	Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4.	Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
03.04.2023	66.1	33.5	17.7	22.2	6.8	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	60.9	31.2	18.3	20.9	7.1	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	64.7	32.5	16.1	23.1	6.3	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	62.8	31.7	15.8	24.4	6.5	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	66.3	33.0	16.7	21.8	7.4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	65.5	32.9	18.6	25.2	7.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	60.9	30.7	17.8	24.6	6.9	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	58.7	29.9	15.2	21.9	6.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	59.3	30.1	19.1	22.9	6.6	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	61.3	31.1	15.9	23.4	6.8	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	60.5	30.6	16.6	21.6	7.1	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	56.6	28.7	17.1	24.1	7.5	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	54.1	27.9	16.8	22.8	6.7	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	60.6	30.5	18.9	20.8	6.3	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	60.2	30.9	16.7	21.3	6.9	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	61.3	31.2	18.8	22.1	6.5	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	64.5	32.9	17.3	22.5	6.5	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	58.9	30.6	16.6	23.7	6.8	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	62.7	32.2	18.9	25.4	6.9	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	61.8	31.7	19.1	22.1	7.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	55.4	28.2	18.4	23.6	7.1	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	59.7	30.2	17.9	21.9	6.7	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	62.3	31.6	18.5	22.4	6.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	65.2	32.9	18.8	24.5	6.9	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Average	**61.3**	**31.1**	**17.6**	**22.9**	**6.8**	**<0.1**	**<20.0**	**<4**	**<0.5**	**<2.5**	**<0.02**	**<1**	**<0.01**
Testing method	**Gravimetric**	**Gravimetric**	**Improved West and Gaeke method**	**Modified Jacob & Hochheiser (Na-Arsenite)**	**Chemical Method**	**NDIR Spectroscopy**	**Indophenol blue method**	**Absorption & Desorption followed by GC analysis**	**Solvent extraction followed by Gas Chromatography analysis**	**AAS method after sampling**			**Zirconium SPADNS Method**

BDL Values/SO_2< 4 $\mu g/m^3$, NO_x< 9 $\mu g/m^3$,O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01 $\mu g/m^3$ CO-<0.1 mg/m^3

Prepared by:

Verified by:

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

Ref: VCSPL/23-24/-TR-15487 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-2: Alind Colony
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
03.04.2023	55.3	28.1	14.5	20.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	50.6	25.6	13.7	21.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	52.8	26.9	13.9	18.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	57.6	28.9	14.1	21.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	61.4	31.5	14.4	20.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	60.9	30.8	12.8	19.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	59.6	30.4	13.9	18.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	51.1	26.1	14.2	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	52.3	26.6	13.6	22.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	55.6	27.7	13.3	20.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	54.1	28.2	14.1	21.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	59.8	30.4	12.8	21.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	61.2	31.3	10.1	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	58.8	30.6	12.2	23.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	52.6	26.9	11.7	20.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	59.1	30.3	12.3	20.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	62.2	32.1	10.1	19.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	60.9	30.6	9.9	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	58.7	29.9	9.7	22.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	59.1	30.3	10.6	24.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	60.3	30.5	9.8	21.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	61.2	31.1	10.2	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	55.8	28.1	9.1	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	54.9	27.6	8.9	21.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Average	57.3	29.2	12.1	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_2< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01$\mu g/m^3$ CO-<0.1 mg/m^3

Prepared by:

Verified by:

Visiontek Consultancy Services Pvt. Ltd.

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Certified for : ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

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- Infrastructure Engineering
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- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15488 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-3 : Budakanta Village
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m³)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
03.04.2023	50.7	25.5	9.8	20.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	44.5	23.9	10.5	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	48.9	24.5	10.1	19.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	51.3	26.4	8.9	21.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	50.2	26.9	7.6	22.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	45.1	24.4	9.1	18.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	40.6	22.3	9.5	21.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	45.5	23.7	8.8	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	43.8	28.7	8.1	23.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	44.1	22.8	6.9	22.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	46.5	23.9	7.3	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	48.9	24.5	6.5	21.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	49.3	25.3	8.8	22.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	52.2	26.4	6.9	20.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	50.1	25.4	9.1	18.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	45.4	23.1	8.9	20.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	41.8	22.2	9.5	21.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	40.5	21.9	8.7	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	48.9	24.7	8.9	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	50.6	25.4	9.1	19.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	52.2	26.6	9.8	19.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	44.1	22.5	8.3	20.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	43.6	21.9	7.7	20.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	45.4	23.2	8.1	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	<0.1	400	05	01	20	1.0	06	–
Average	46.8	24.4	8.6	21.0	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_x< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01$\mu g/m^3$ CO<0.1 mg/m^3

VISIONTEK CONSULTANCY SERVICES PVT. LTD. Prepared by:

VISIONTEK CONSULTANCY SERVICES PVT. LTD. Verified by:

Ref: VCSPL/23-24/TR-15489 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-4 : Garmunda Village
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
03.04.2023	61.5	31.1	15.7	20.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	57.4	28.9	16.3	21.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	59.3	29.8	16.8	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	55.2	27.8	14.9	22.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	56.6	28.3	15.2	19.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	52.9	26.9	14.4	20.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	50.4	25.7	17.1	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	58.1	29.4	16.8	21.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	56.3	28.5	18.2	24.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	52.9	27.1	15.9	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	54.5	27.7	18.8	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	59.1	30.2	16.6	21.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	60.3	30.5	15.7	19.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	58.8	30.6	14.9	20.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	54.9	28.2	16.3	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	56.3	28.7	16.9	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	52.1	26.5	17.1	24.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	57.7	29.1	13.3	23.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	58.9	30.4	15.2	25.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	56.4	28.9	14.8	23.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	55.1	27.9	14.9	24.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	58.5	29.6	16.7	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	59.3	30.5	18.3	21.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	55.6	28.1	15.5	24.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Average	56.6	28.8	16.1	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hachheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO2< 4 µg/m3, NOX< 9 µg/m3,O3<4 µg/m3, Ni<0.01 ng/m3, As<0.001 ng/m3, C6H6<0.001 µg/m3, BaP<0.002 ng/m3, Pb<0.001 µg/m3, F<0.01µg/m3,CO <0.1 mg/m³

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Verified by:

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Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15490 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-5 : Burla Town
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
03.04.2023	60.8	31.3	18.5	25.6	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	62.9	30.2	16.9	27.9	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	56.1	28.3	17.7	22.9	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	66.1	33.5	17.9	28.6	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	64.9	32.6	16.5	26.4	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	68.1	34.5	18.2	25.1	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	62.6	32.1	15.8	27.1	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	59.5	30.3	11.1	26.7	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	57.5	29.1	16.3	24.9	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	61.2	31.6	18.8	26.3	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	62.8	32	15.4	25.5	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	58.9	30.1	14.9	28.2	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	60.7	30.5	16.3	27.6	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	59.5	30.1	12.3	28.9	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	56.1	28.8	12.9	26.3	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	60.4	30.2	13.3	27.2	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	62.3	31.5	14.5	28.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	55.2	28.2	15.1	25.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	58.9	29.7	16.3	21.5	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	61.1	31.3	14.4	22.3	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	60.7	30.5	15.9	24.4	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	60.3	30.6	13.8	27.7	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	64.1	32.3	15.1	24.9	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	59.1	30.5	14.2	22.3	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Average	60.8	30.8	15.5	25.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_2< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01 $\mu g/m^3$ CO-<0.1 mg/m^3

Prepared by:

Checked by:

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

Visiontek Consultancy Services Pvt. Ltd.

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- Infrastructure Engineering
- Water Resource Management
- Environmental & Social Study
- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy
- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15491 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-6 : Dhanipalli village
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	O3 (µg/m3)	CO (mg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	Ni (ng/m3)	Pb (µg/m3)	As (ng/m3)	F (µg/m3)
03.04.2023	52.8	26.7	12.9	16.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	49.8	25.1	13.6	15.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	50.3	25.3	14.1	14.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	51.7	26.1	14.5	10.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	45.4	21.3	13.1	12.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	49.7	24.9	10.7	14.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	52.8	26.7	12.8	15.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	55.1	28.1	10.9	16.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	50.9	25.4	12.2	15.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	51.1	25.9	11.8	13.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	48.9	25.1	12.5	14.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	46.9	23.9	12.1	16.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	51.1	26.4	8.9	15.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	52.3	26.9	9.7	16.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	45.4	24.1	10.4	14.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	49.8	25.3	11.1	15.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	50.6	25.7	9.9	13.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	51.4	26.2	10.2	15.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	55.3	28.2	10.9	12.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	52.2	26.6	11.1	13.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	50.9	25.8	9.9	12.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	48.9	24.9	8.7	13.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	51.1	26.1	10.6	12.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	49.7	25.2	11.3	14.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	50.6	25.7	11.4	14.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 µg/m³, NO_X< 9 µg/m³, O_3<4 µg/m³, Ni<0.01 ng/m³, As< 0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01µg/m³ CO-<0.1 mg/m³

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- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
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Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR-15492 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-7 : Hindalco Club
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM10 (µg/m³)	PM2.5 (µg/m³)	SO2 (µg/m³)	NOx (µg/m³)	O3 (µg/m³)	CO (mg/m³)	NH3 (µg/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Ni (ng/m³)	Pb (µg/m³)	As (ng/m³)	F (µg/m³)
03.04.2023	42.9	23.8	8.8	14.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	50.1	25.6	9.6	13.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	49.7	25.6	7.1	14.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	43.4	22.8	7.5	15.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	40.2	21.3	8.3	16.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	48.3	24.6	8.9	16.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	46.7	24.1	9.5	15.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	41.7	22	9.1	17.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	42.3	21.8	8.9	14.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	47.9	24.1	6.9	16.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	49.8	25.2	8.5	16.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	45.4	23.3	8.1	14.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	42.8	22.2	9.5	15.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	50.6	25.6	7.2	16.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	40.9	20.8	7.8	15.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	42.2	21.6	8.1	13.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	48.8	24.9	8.9	14.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	43.7	25.3	7.9	15.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	41.4	22.5	8.6	15.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	42.5	23.1	7.5	16.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	48.4	24.9	8.1	14.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	44.1	22.5	8.8	12.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	49.5	25.8	9.2	14.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	42.7	23.3	8.6	15.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Average	45.3	23.6	8.4	15.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 µg/m³, NO_x< 9 µg/m³, O_3<4 µg/m³, Ni<0.01 ng/m³, As< 0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01µg/m³ CO<0.1 mg/m³

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- Quality Control & Project Management
- Renewable Energy
- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15493 **Date: 05.07.2023**

AMBIENT AIR QUALITY MONITORING REPORT (APR-2023 TO JUN-2023)

1.	Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2.	Sampling Location	:	Monitoring Station No.- AAQMS-8 : Jyoti Vihar University
3.	Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4.	Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	O3 (µg/m3)	CO (mg/m3)	NH3 (µg/m3)	CnHn (µg/m3)	BaP (ng/m3)	Ni (ng/m3)	Pb (µg/m3)	As (ng/m3)	F (µg/m3)
03.04.2023	58.5	29.8	12.9	18.3	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.04.2023	58.9	29.5	13.6	17.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
10.04.2023	60.3	30.3	14.1	18.9	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.04.2023	61.7	31.2	14.5	20.2	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
17.04.2023	54.4	27.8	13.1	15.7	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.04.2023	60.7	30.5	10.7	16.4	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
24.04.2023	52.8	26.7	12.8	15.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.04.2023	55.1	28.1	10.9	16.7	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
01.05.2023	60.3	30.2	12.2	17.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.05.2023	64.1	32.4	11.8	15.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.05.2023	58.9	30.2	12.5	18.6	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.05.2023	56.1	28.8	12.1	19.6	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.05.2023	58.5	29.3	8.9	15.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.05.2023	59.1	30.4	9.7	16.7	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.05.2023	54.4	27.5	10.4	14.9	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.05.2023	59.8	30.2	11.1	15.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.06.2023	50.6	25.9	9.9	14.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
08.06.2023	51.4	25.8	10.2	15.7	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.06.2023	55.3	27.9	10.9	12.9	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
15.06.2023	58.5	29.6	11.1	13.8	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.06.2023	60.3	30.8	9.9	14.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
22.06.2023	63.1	32.2	8.7	16.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.06.2023	52.1	26.4	10.6	12.2	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
29.06.2023	55.7	28.1	11.3	18.2	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	57.5	29.2	11.4	16.2	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 µg/m³, NO_x< 9 µg/m³, O_3<4 µg/m³, Ni<0.01 ng/m³, As< 0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01µg/m³ CO-<0.1 mg/m³

Prepared by:

Checked by:

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

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- Quality Control & Project Management
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- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR-15468 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-1 : Plant Site
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2023	65.8	33.1	15.5	21.2	6.6	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	60.9	30.6	16.7	20.6	6.4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	58.8	29.9	17.4	23.4	7.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	55.4	28.1	16.3	25.1	6.3	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	62.3	32.2	16.9	22.2	6.9	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	65.1	34.1	15.4	20.8	6.5	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	69.7	35.1	18.7	23.4	6.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	60.3	30.6	20.1	22.6	7.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	52.9	26.9	20.3	21.5	7.1	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	58.7	30.1	20.2	22.1	7.3	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	53.6	27.7	19.9	23.6	6.7	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	56.6	28.5	18.7	21.4	6.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	60.4	30.8	14.9	22.5	6.9	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	66.2	33.4	15.7	20.9	6.5	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	58.4	29.9	21.3	21.5	6.6	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	65.2	32.7	20.8	22.3	6.1	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	59.9	30.2	19.6	25.1	7.2	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	55.7	28.3	19.2	20.7	6.7	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	60.2	30.4	18.3	21.8	6.3	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	62.7	31.5	17.6	22.3	7.3	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	65.8	33.2	18.9	24.6	6.6	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	61.5	31.1	19.1	25.1	7.1	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	62.4	31.9	17.4	22.3	7.3	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	59.5	30.6	18.3	24.6	6.9	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Average	60.8	30.9	18.2	22.6	6.75	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_x< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01 $\mu g/m^3$ CO-<0.1 mg/m^3

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- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/-TR-15469 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-2: Aliad Colony
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2023	56.8	28.8	15.1	21.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	54.1	27.6	12.8	20.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	50.9	26.9	15.1	22.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	55.7	28.9	14.9	19.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	60.8	31.5	14.7	20.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	62.3	31.8	13.9	18.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	63.6	32.1	15.2	19.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	61.1	31.6	14.7	20.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	58.9	29.6	14.1	23.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	60.2	30.4	14.3	22.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	57.4	29.1	13.6	23.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	62.3	31.7	14.8	18.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	63.1	32.5	12.9	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	60.9	30.6	15.1	23.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	58.7	29.5	13.6	20.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	59.9	30.3	14.2	19.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	63.7	32.1	15.3	21.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	62.9	31.8	15.8	20.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	56.9	29.9	16.1	21.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	62.1	31.7	12.3	22.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	61.9	32	13.5	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	58.8	31.1	14.4	21.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	60.4	30.6	12.9	22.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	59.1	29.9	13.1	21.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	59.7	30.5	14.3	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2 < 4 $\mu g/m^3$, NO_x < 9 $\mu g/m^3$, O_3 < 4 $\mu g/m^3$, Ni < 0.01 ng/m^3, As < 0.001 ng/m^3, C_6H_6 < 0.001 $\mu g/m^3$, BaP < 0.002 ng/m^3, Pb < 0.001 $\mu g/m^3$, F < 0.01 $\mu g/m^3$ CO < 0.1 mg/m^3

Prepared by:

Verified by:

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
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- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR-15470 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1.	Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2.	Sampling Location	:	Monitoring Station No.- AAQMS-3 : Budakanta Village
3.	Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4.	Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)	SO_2 (µg/m³)	NO_x (µg/m³)	O_3 (µg/m³)	CO (mg/m³)	NH_3 (µg/m³)	C_6H_6 (µg/m³)	BaP (ng/m³)	Ni (ng/m³)	Pb (µg/m³)	As (ng/m³)	F (µg/m³)
02.10.2023	52.1	26.1	9.2	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	49.8	25.2	8.9	20.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	50.3	25.5	10.4	18.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	53.6	27.1	9.8	20.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	51.1	25.9	8.3	22.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	49.1	24.8	9.5	19.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	44.6	22.7	9.8	18.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	48.3	24.6	8.9	17.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	49	25.1	10.2	22.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	51.2	25.8	7.5	23.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	54.4	27.7	8.2	21.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	52.3	26.3	7.1	19.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	49.3	25.1	8.5	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	53.2	26.2	7.7	21.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	54.1	27.9	8.9	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	55.6	28.1	9.5	21.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	50.8	25.6	9.8	20.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	52.9	26.7	10.3	21.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	51.6	26.1	8.1	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	50.6	25.4	9.5	20.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	53.4	27.1	9.9	18.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	49.6	25.1	10.3	21.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	50.5	25.5	8.1	21.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	47.7	23.9	7.5	22.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	51.0	25.8	9.0	20.9	<4.0	0.27	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indophenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 µg/m³, NO_x< 9 µg/m³ O_3<4 µg/m³, Ni<0.01 ng/m³, As< 0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01µg/m³ CO<0.1 mg/m³

Prepared by

Verified by

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
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- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15471 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-4 : Garmunda Village
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2023	58.9	30.5	16.6	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	60.2	31.2	15.8	20.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	53.4	27.7	15.9	21.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	50.1	25.6	16.1	25.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	55.6	28.1	16.7	22.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	54.4	27.9	18.5	21.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	58.1	29.5	19.1	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	52.5	26.7	16.3	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	56.4	28.8	15.4	25.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	55.1	27.9	18.1	24.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	56.3	28.4	15.6	21.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	59.1	30.2	16.7	20.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	58.2	29.9	15.4	22.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	52.5	27.3	12.9	21.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	50.9	25.6	16.1	21.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	56.6	28.7	17.6	20.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	53.4	27.4	12.3	24.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	58.2	30.1	14.5	22.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	57.1	29.5	15.5	21.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	52.9	26.6	16.3	22.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	54.3	28.2	17.4	25.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	58.5	29.6	18.2	22.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	59.7	30.3	17.6	19.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	52.2	26.8	16.8	20.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	55.6	28.4	16.3	22.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO2< 4 µg/m3, NOX< 9 µg/m3,O3<4 µg/m3, Ni<0.01 ng/m3, As< 0.001 ng/m3, C6H6<0.001 µg/m3, BaP<0.002 ng/m3, Pb<0.001 µg/m3, F<0.01µg/m3,CO-<0.1 mg/m^3

Prepared by:- Verified by:-

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

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- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR-15472 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-5 : Burla Town
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2023	61.8	31.8	19.1	25.3	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	62.5	31.6	18.7	28.2	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	59.9	29.9	17.8	23.4	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	67.5	34.1	17.5	29.1	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	65.8	33.2	18.2	27.5	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	69.1	35.1	16.7	26.8	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	63.3	32.6	17.5	28.3	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	60.5	30.8	17.2	29.2	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	58.9	30.2	18.2	25.7	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	62.9	31.7	15.9	28.8	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	64.1	32.3	16.1	27.1	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	60.7	30.6	16.8	29.6	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	60.7	30.5	15.3	28.3	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	57.5	28.9	14.9	28.1	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	60.1	30.4	15.5	25.4	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	61.4	30.9	14.9	29.5	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	62.5	31.6	18.6	29.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	58.9	29.9	19.2	25.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	59.1	30.2	16.3	26.7	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	62.2	31.5	17.2	25.4	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	60.4	30.8	18.2	28.1	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	61.3	31.6	17.1	25.9	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	65.2	32.9	18.2	28.1	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	66.1	33.2	15.9	23.5	< 4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	62.2	31.5	17.1	27.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconin SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_x< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01$\mu g/m^3$CO<0.1 mg/m^3

VISIONTEK CONSULTANCY SERVICES PVT. LTD. Prepared By:

VISIONTEK CONSULTANCY SERVICES PVT. LTD. Verified By:

Ref: VCSPL/23-24/TR- 15473 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-6 : Dhanipalli village
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	O3 (µg/m3)	CO (mg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	Ni (ng/m3)	Pb (µg/m3)	As (ng/m3)	F (µg/m3)
02.10.2023	50.9	25.6	14.8	18.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	52.2	26.7	12.2	15.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	51.6	26.1	10.6	12.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	54.2	27.5	9.7	14.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	55.1	27.9	10.2	16.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	54.4	28.2	11.4	15.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	49.8	25.1	12.3	16.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	50.5	25.6	15.1	13.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	52.6	26.8	11.8	15.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	53.3	27.1	12.5	16.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	55.2	29.5	10.1	15.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	51.8	26.6	9.7	12.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	50.6	25.7	10.3	14.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	52.2	26.6	10.8	15.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	53.9	27.4	12.5	14.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	51.4	26.2	11.6	15.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	52.7	26.8	14.8	16.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	50.8	25.9	15.5	17.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	48.5	24.9	12.1	14.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	50.6	25.4	13.7	15.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	52.2	26.7	12.5	13.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	54.7	28.1	11.9	14.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	51.3	27.2	11.2	15.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	55.6	28.8	12.6	14.4	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Average	52.3	26.8	12.1	15.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 µg/m³, NO_X< 9 µg/m³, O_3<4 µg/m³, Ni<0.01 ng/m³, As< 0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01µg/m³ CO<0.1 mg/m³

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- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

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Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR-15474 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-7 : Hindalco Club
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM10 (µg/m³)	PM2.5 (µg/m³)	SO2 (µg/m³)	NOx (µg/m³)	O3 (µg/m³)	CO (mg/m³)	NH3 (µg/m³)	C6H6 (µg/m³)	BaP (ng/m³)	Ni (ng/m³)	Pb (µg/m³)	As (ng/m³)	F (µg/m³)
02.10.2023	41.8	23.3	9.1	15.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	42.5	22.9	8.9	14.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	48.8	25.1	9.5	16.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	50.7	25.9	9.8	16.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	49.1	25.2	7.7	15.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	52.3	26.3	8.6	16.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	50.8	25.7	7.9	14.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	45.4	23.1	8.5	18.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	43.9	22.2	8.9	18.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	49.1	25.5	9.8	16.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	50.7	26.3	10.6	17.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	46.7	24.1	8.1	16.5	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	48.2	24.8	9.5	14.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	50.1	25.6	11.1	18.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	43.3	22.5	10.5	19.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	45.4	23.3	7.8	15.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	49.6	25.2	9.6	14.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	41.8	21.8	9.5	17.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	50.2	25.6	4.9	17.8	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	48.6	24.4	8.1	16.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	49.5	25.2	7.5	18.2	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	45.2	22.9	9.6	15.9	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	51.1	25.6	8.3	16.7	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	50.3	25.7	9.6	17.1	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	47.7	24.5	8.9	16.6	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2<4 µg/m³, NO_2<9 µg/m³, O_3<4 µg/m³, Ni<0.01 ng/m³, As<0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01µg/m³ CO<0.1 mg/m³

VISIONTEK CONSULTANCY SERVICES PVT. LTD. — Prepared by:

VISIONTEK CONSULTANCY SERVICES PVT. LTD. — Verified by:

Ref: VCSPL/23-24/TR-15475 **Date: 05.01.2024**

AMBIENT AIR QUALITY MONITORING REPORT (OCT-2023 TO DEC-2023)

1. Name of Industry	:	M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Sampling Location	:	Monitoring Station No.- AAQMS-8 : Jyoti Vihar University
3. Monitoring Instruments	:	RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by	:	VCSPL representative

Date	PARAMETERS												
	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx (µg/m3)	O3 (µg/m3)	CO (mg/m3)	NH3 (µg/m3)	C6H6 (µg/m3)	BaP (ng/m3)	Ni (ng/m3)	Pb (µg/m3)	As (ng/m3)	F (µg/m3)
02.10.2023	59.6	30.2	13.3	18.8	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
05.10.2023	57.5	28.9	12.5	17.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.10.2023	60.3	30.6	14.5	16.9	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
12.10.2023	55.2	28.1	14.9	20.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.10.2023	51.9	26.5	14.7	21.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
19.10.2023	60.5	30.5	12.9	19.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.10.2023	62.3	31.3	13.3	22.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
26.10.2023	58.9	29.6	12.9	18.7	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
02.11.2023	64.1	32.5	13.1	19.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
06.11.2023	62.7	31.9	12.2	20.3	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
09.11.2023	60.8	30.6	10.9	18.9	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
13.11.2023	59.5	30.2	12.5	21.4	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
16.11.2023	63.7	32.2	10.6	17.8	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
20.11.2023	62.5	32.1	12.1	22.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
23.11.2023	63.9	33.5	9.9	20.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
27.11.2023	65.1	33.9	13.2	21.3	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
04.12.2023	60.8	30.7	12.8	16.7	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
07.12.2023	57.4	28.9	13.5	18.9	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
11.12.2023	62.7	31.6	12.2	19.5	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
14.12.2023	60.9	30.5	11.6	17.7	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
18.12.2023	58.8	30.3	10.2	18.1	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
21.12.2023	63.8	32.7	9.8	15.6	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
25.12.2023	64.5	33.1	10.6	18.9	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
28.12.2023	62.9	32.9	11.5	20.2	<4	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Average	60.8	31.0	12.3	19.3	<4.0	<0.1	<20.0	<4	<0.5	<2.5	<0.02	<1	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling			Zirconium SPADNS Method

BDL Values: SO_2< 4 µg/m³, NO_x< 9 µg/m³, O_3<4 µg/m³, Ni<0.01 ng/m³, As< 0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01 µg/m³ CO-<0.1 mg/m³

Prepared by: BBSR

Verified by: BBSR

Annexure-VIII

AMBIENT NOISE QUALITY DATA

(October 2023 - March 2024)

Sl. No.	Location	Category	Standard * Day / Night	Distance / Direction w.r.t Plant	Noise Level (Day/Night) in dB(A)					
					Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24
1.	Riverside Colony	Residential	55/45	0.8 km / SW	53.8/44.1	53.4/44.8	52.5/44.5	52.4/44.1	51.5/44.6	51.03/44.1
2.	Tarasingh pada	Residential	55/45	0.2 km / S	52.7/43.9	52.6/42.9	52.3/43.1	52.0/43.7	51.6/43.1	51.3/42.9
3.	Christian pada	Residential	55/45	0.1 km / S	51.6/43.6	51.5/44.1	51.2/43.6	51.4/43.2	50.65/42.8	50.5/42.5
4.	Power Plant Security Gate	Industrial	75/70	Plant Site	64.6/62.8	63.5/61.3	62.4/60.8	62.4/60.5	61.4/61.4	60.7/60.5
5.	Power Colony	Residential	55/45	0.4 km / NW	53.4/43.9	53.1/44.2	52.1/42.9	52.2/43.1	51.7/42.6	51.3/42.3

* Day Time : 0600 to 2200 Hrs *Night Time : 2200 to 0600 Hrs.

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- Water Resource Management
- Environmental & Social Study
- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy
- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15494

Date: 05.07.2023

NOISE QUALITY MONITORING REPORT MAY-2023

1. Name of Industry :M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Monitored By : VCSPL representative

Daytime Noise monitoring results (Noise Level in dB (A)MAY-2023

TIME (6.00AM to 9.00PM)	N1:Plant Gate (01.05.2023)	N2:Aliad Colony (03.05.2023)	N3:Jamadarpali (08.05.2023)	N4:Garmunda (10.05.2023)	N5:Burla Town (15.05.2023)	N6:Dhanapali (17.05.2023)	N7:Plant Township (22.05.2023)	N8:Sambalpur University (24.05.2023)	N9:Tarasinghpara (29.05.2023)	N10:Christianpada (31.05.2023)
06.00am	64.2	52.6	45.2	45.3	47.5	41.9	46.2	44.6	38.6	41.6
07.00am	67.2	49.2	47.6	58.1	48.6	47.4	47.3	45.2	44.6	47.6
08.00am	66.7	51.7	51.3	48.2	54.1	50.2	45.2	46.2	42.5	51.2
09.00am	71.2	50.9	50.7	50.1	53.7	48.8	48.3	51.3	47.5	46.2
10.00am	73.2	53.4	52.3	47.3	62.1	52.6	47.2	50.6	49.3	49.2
11.00am	70.0	50.7	53.7	50.2	63.3	51.4	49.6	55.2	45.2	52.3
12.00 noon	73.1	54.1	52.6	46.2	60.5	53.2	47.3	54.6	51.3	51.4
01.00pm	66.2	52.6	51.8	48.4	60.2	54.6	48.2	53.1	52.7	54.6
02.00pm	71.6	51.7	53.4	45.2	64.3	51.7	51.6	49.7	53.6	52.7
03.00pm	64.9	53.6	50.1	47.1	58.7	52.3	50.1	51.3	50.1	51.4
04.00pm	68.2	51.7	51.7	45.5	57.1	50.2	52.6	52.7	54.6	52.6
05.00pm	72.7	50.8	54.3	49.2	62.2	48.6	51.7	53.7	51.6	49.2
06.00pm	73.8	53.7	51.6	50.3	64.7	51.2	49.5	48.6	52.3	53.5
07.00pm	68.4	54.1	50.7	51.7	62.7	54.2	52.6	49.5	54.2	54.6
08.00pm	65.7	51.4	51.9	52.3	59.3	51.6	47.1	48.3	49.6	52.1
09.00pm	60.1	48.2	54.6	49.5	61.1	48.6	45.2	46.2	52.3	51.3
Average	**68.5**	**51.9**	**51.5**	**48.6**	**58.8**	**50.5**	**48.7**	**49.9**	**49.4**	**50.7**
Standard as per CPCB	75	55	55	55	65	55	55	55	55	55

Night time Noise monitoring results (Noise Level in dB (A)MAY-2023

TIME (10.00PM to 5.00AM)	N1:Plant Gate (01.05.2023)	N2:Aliad Colony (03.05.2023)	N3:Jamadarpali (08.05.2023)	N4:Garmunda (10.05.2023)	N5:Burla Town (15.05.2023)	N6:Dhanapali (17.05.2023)	N7:Plant Township (22.05.2023)	N8:Sambalpur University (24.05.2023)	N9:Tarsinghpara (29.05.2023)	N10:Christianpada (31.05.2023)
10.00pm	62.5	44.6	44.7	41.6	50.7	47.2	42.7	40.7	41.7	42.6
11.00pm	63.5	42.7	43.6	42.7	49.6	45.2	41.6	43.0	44.5	42.5
12.00 Midnight	67.5	44.5	45.1	49.6	53.2	46.2	39.9	41.5	43.7	42.7
01.00am	69.2	42.6	44.8	40.8	50.7	44.1	37.6	39.5	42.6	41.2
02.00am	62.5	39.5	40.8	40.6	51.5	43.2	41.7	43.1	41.5	38.2
03.00am	61.4	42.6	42.7	41.7	46.5	41.7	43.6	42.7	37.5	40.4
04.00am	61.5	40.7	43.6	42.5	51.2	39.5	44.1	40.2	42.8	42.3
05.00am	62.3	43.6	41.5	40.1	48.6	43.2	45.2	42.6	40.5	43.2
Average	**65.3**	**44.9**	**46.3**	**44.8**	**53.3**	**45.9**	**44.2**	**44.1**	**44.7**	**44.9**
Standard as per CPCB	70	45	45	45	55	45	45	45	45	45

Prepared by

Verified by

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

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- Quality Control & Project Management
- Renewable Energy
- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

Ref: VCSPL/23-24/TR- 15476

Date: 05.01.2024

NOISE QUALITY MONITORING REPORT NOVEMBER-2023

1. Name of Industry : M/s Hindalco Industries Limited, Hirakud Power, Sambalpur, Odisha
2. Monitored By : VCSPL representative

Daytime Noise monitoring results (Noise Level in dB (A) NOVEMBER-2023

TIME (6.00AM to 9.00PM)	N1:Plant Gate (01.11.2023)	N2:Alind Colony (03.11.2023)	N3:Jamadarpali (08.11.2023)	N4:Garmunda (10.11.2023)	N5:Barla Town (15.11.2023)	N6:Dhanapali (17.11.2023)	N7:Plant Township (22.11.2023)	N8:Sambalpur University (24.11.2023)	N9:Tarasinghpara (27.11.2023)	N10:Christianpada (29.11.2023)
06.00am	67.9	50.1	46.9	46.1	49.1	43.7	44.2	42.9	40.7	42.3
07.00am	68.5	50.8	48.3	49.2	50.2	48.3	45.1	46.6	44.1	45.4
08.00am	66.7	52.5	50.4	47.8	51.8	49.1	47.3	48.1	42.3	49.8
09.00am	69.1	51.9	53.5	49.2	54.6	50.6	46.4	50.4	45.5	44.6
10.00am	72.5	53.4	51.8	48.0	58.9	51.2	46.0	52.6	47.8	47.3
11.00am	69.6	52.9	52.9	49.5	60.7	50.3	47.8	51.8	43.9	50.5
12.00 noon	70.2	53.3	50.4	48.3	62.4	52.3	45.3	54.4	49.8	49.8
01.00pm	68.3	54.1	53.1	47.2	61.8	52.8	46.9	52.9	50.6	52.2
02.00pm	72.1	53.6	54.7	46.1	63.4	53.1	50.1	56.1	51.3	51.7
03.00pm	66.5	54.7	52.3	45.9	64.9	50.9	48.9	52.3	48.8	49.4
04.00pm	71.2	53.2	53.6	46.8	58.7	48.3	50.4	58.7	52.4	50.3
05.00pm	70.6	53.9	53.5	47.7	64.9	46.3	52.3	52.8	49.5	48.8
06.00pm	73.2	54.1	54.1	48.9	63.9	50.9	53.6	48.5	50.6	52.4
07.00pm	68.5	53.7	52.3	49.5	64.4	52.2	51.8	48.7	52.2	51.6
08.00pm	66.3	52.0	54.7	50.2	60.8	53.1	49.2	46.3	48.7	53.8
09.00pm	62.8	50.1	53.2	47.6	59.1	50.5	43.7	45.2	49.2	50.9
Average	**69.0**	**52.8**	**52.3**	**48.0**	**59.0**	**50.3**	**48.1**	**49.7**	**48.0**	**49.4**
Standard as per CPCB	75	55	55	55	65	55	55	55	55	55

Night time Noise monitoring results (Noise Level in dB (A) NOVEMBER-2023

TIME (10.00PM to 5.00AM)	N1:Plant Gate (01.11.2023)	N2:Alind Colony (03.11.2023)	N3:Jamadarpali (08.11.2023)	N4:Garmunda (10.11.2023)	N5:Barla Town (15.11.2023)	N6:Dhanapali (17.11.2023)	N7:Plant Township (22.11.2023)	N8:Sambalpur University (24.11.2023)	N9:Tarasinghpara (27.11.2023)	N10:Christianpada (29.11.2023)
10.00pm	63.5	42.3	47.5	43.5	52.6	45.7	42.2	42.9	44.1	43.8
11.00pm	62.9	40.9	45.4	44.0	50.8	43.8	40.7	41.8	43.7	44.3
12.00 Midnight	63.5	42.1	45.9	42.7	51.2	44.1	41.2	42.2	42.8	42.7
01.00am	67.1	41.9	45.2	42.2	49.7	42.9	39.8	40.7	43.1	42.2
02.00am	69.8	40.5	42.6	41.8	50.6	43.0	40.4	42.3	40.5	40.8
03.00am	61.0	41.2	42.0	40.2	48.2	40.6	42.2	40.9	39.9	41.1
04.00am	62.2	42.2	41.8	41.5	49.5	40.2	42.5	39.8	40.2	40.2
05.00am	63.7	43.1	42.5	42.2	50.1	42.9	43.6	40.1	41.6	41.3
Average	**63.4**	**41.6**	**43.6**	**42.3**	**50.3**	**42.7**	**41.6**	**41.3**	**42.0**	**42.3**
Standard as per CPCB	70	45	45	45	55	45	45	45	45	45

Prepared By:

Verified By:

Plot No.- M-22 & 23, Chandaka Industrial Estate, Patia, Bhubaneswar, Khurda, Odisha-751024, India Tel.: 0674-3511721
E-mail: visiontek@visiontek.org, visiontekin@gmail.com
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Annexure –IX

CSR ACTIVITIES WITH EXPENSES OF HINDALCO SMELTER & POWER (OCTOBER 2023 TO MARCH 2024)

Project Activities	Unit Achievement	
	Population Reached	Hindalco Prog Spending in INR. LACS
Education		
School Education Program	471	5.11
Education support programs	300	0.50
Vocational and Technical Education	222	50.33
School Infrastructure	500	0.14
Sub Total-Education	**1493**	**56.08**
Health		
Preventive Health Care	27473	20.37
Curative Health Care program	2819	9.49
Support to family planning /camps	98	1.22
Quality / Support Program	413	1.03
Sub Total-Health	**30803**	**32.11**
Sustainable Livelihood		
Agriculture and Farm Based	120	1.14
Animal Husbandary Based	550	15.00
Non farm & Skills Based Income generation Program	1092	1.97
Sub Total-Sustainable Livelihood	**1762**	**18.11**
Infrastructure	50000	15.62
SubTotal-Infrastructure	5000	15.62
Social Development Projects		
Sub Total Social Development	**46390**	**56.10**
Grand Total	**85448**	**178.03**
Total Population covered is 85,448 and expenditure towards CSR activities is Rs.178.03 lacs for the period Oct'23 to March'24		

Annexure - X

ENVIRONMENTAL EXPENDITURE

(April 2023 - March 2024)

01.	Ash Handling & management	:	Rs.	5222.29	Lakh
02.	Operating & Maintenance cost of ESP, Plant including CHP	:	Rs.	4198	Lakh
03.	Envt. Monitoring / Envt. Charges including Environment Management System and water cess	:	Rs.	253.27	Lakh
04.	O & M of RO Plant, ETP & STP	:	Rs.	114.11	Lakh
05.	Cooling Tower CPP		Rs.	303.95	Lakh
06.	Hazardous Waste disposal cost		Rs.	4290.22	Lakh
07.	CEMS/AAQMS/WEQMS/CCTV Camera		Rs.	98.81	Lakh
08.	Fume Treatment Plant		Rs.	1058.87	Lakh
	TOTAL	:	**Rs.**	**15539.52**	**Lakh**