ADITYA BIRLA

HINDALCO

Ref: HILS/HKD/22-23/75

23rd May 2022

To,

The Director (S)
Eastern Regional Office,
Ministry of Environment and Forests & CC,
Government of India,
A/3, Chandrasekharpur,
Bhubaneswar - 751023

Sub: Compliance of Environment Clearance (EC) conditions for the period October'21 to March'22 – Reg.

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

Dear Sir,

With referene to the above stated Environment Clearance (EC), accorded to our Aluminium Smelter & CPP Plant at Hirakud in the district of Sambalpur, Odisha, please find enclosed herewith the six-monthly compliances of the conditions laid down in the ECs for the period of October'21 to March'22, along with data on environment quality of both the plants.

The compliances have been sent through mail id: roez.bsr-mef@nic.in.

Thanking you.

Yours truly

Kailash Nath Pandey
Head– Sambalpur Cluster

Encl: As above

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 FRP: Hirakud - 768 016, District: Sambalpur, Odisha, India
T: +91 663 6625 100 | E: hindalco@adityabirla.com | W: www.hindalco.com
Registered Office: Ahura Centre, 1st Floor, B-Wing, Mahakali Caves Road, Andheri (East), Mumbai 400 093
Tel: +91 22 6691 7000 | Fax: + 91 222 6691 7001
Corporate ID No.: L27020MH1958PLC011238

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

Name of the project	M/s Hindalco industries limited, Hirakud, Sambalpur, 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'2021 to March'2022

Sl. No.	SPECIFIC CONDITIONS		Status as on 31st March' 2022
(i)	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 prebaked technology. All the 13 Boilers of 467.5 MW (1x 67.5 MW & 4x 100 MW) Power Plant are of CFBC technology.
(ii)	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. On-line continuous monitoring system for particulate emissions, SO_2 and NO_x shall be provided and shall make necessary arrangements for submission of on-line real time emission data to 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 restarted until the control measures are rectified to achieve the desired efficiency. Low NOx burners shall be installed to control the NOx emissions.	:	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. The summary of the monitoring report is enclosed as annexure 1. (Refer: page no. 11 & 12). 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 for SO_2, NOx 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 operation are continuous in nature. As interlocking facilities are not feasible, alarm systems have been installed for identification any kind of failure/tripping of pollution control systems attached to the operating units. In CPP, environment friendly CFBC boilers have been installed to each unit, which are low

			NO_x producing in nature for the technology used in the boiler. The emission is well below the limit prescribed by OSPCB.
(iii)	Only 10 new stacks shall be installed for the expansion project - 4 in smelter plant, 4 in anode plant and 2 in casting unit. The scrubbed alumina from Alumina based dry scrubbing system shall be reused in 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 base on Sulphur content of fuel. 3 new stacks in 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 50m have been provided to all FTPs and six stacks attached to casting units & caster. No anode baking plant exists inside the smelting unit. Stacks of height 130 m have been provided for 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.
(iv)	Total Fluoride emissions and pitch fumes from smelter and anode-baking unit shall be controlled using alumina based dry scrubbing system to limit Fluoride's emissions within 0.8 kg/ton Aluminium produced and SPM within 50 mg/Nm3. SPM emissions from 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 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 unit of Aditya Aluminium are used in the smelting process. The particulate matter, fluoride emissions and forage fluoride in grass are being monthly monitored for the impact of Smelter Plant operation and reported to SPCB and Ministry through half yearly compliance reports. All the processes of Smelter Plant & CPP are meeting the stipulated norms of MoEF&CC/CPCB/SPCB. The summary of the smelter stack monitoring report is enclosed as annexure 1. (Refer page no. 11)
(v)	Regular monitoring of fluoride content in ambient air, forage fluoride and in ground water shall be carried out and data shall be submitted to State pollution Control Board.	:	Regular monitoring of fluoride in surface water, ground water as well as forage fluoride is being carried out in regular intervals and the data is submitted to State Pollution Control Board along with monthly progress reports. The summary of the forage fluoride analysis report is enclosed as annexure 1. (Refer page no. 16)
(vi)	Raw material shall be stored in covered yards. Water sprinkling arrangement shall be made in the raw material stock yard to control fugitive emissions. Coal and other raw material shall be transported in covered trucks, containers etc., which shall later be shifted to covered rail wagons.	:	The coal for 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 Power plant. Dust suppression arrangement like water sprinkling is done through fixed sprinklers to prevent the fugitive emission. Fugitive dust in the roads is suppressed by water sprinkling through mobile water tankers.

			Alumina for Smelter Plant is transported from Alumina Refinery at Rayagada, Odisha and Muri, Jharkhand through BTAP wagons/ bulktainers and stored in dedicated Alumina silos for use in pots through pneumatic conveying.
(vii)	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 provision of dust extraction and suppression system consisting of water sprinkling, suction hoods, fans, cyclones, bag filters, venturi scrubber 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 suction hood shall be provided and subsequent treatment through 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 Plant (FTPs) connected to Smelting process. Dust collection and suppression system have been provided at different dust generating sources of Smelter. Control of fugitive emission in CPP is ensured by central de-dusting system with suction hoods and bag filter has been provided in the crusher houses of CHP. 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. Bag filters have been provided in crusher houses of CHP & ash silos. Adequate ash conditioning is being ensured before ash unloading from ash silo to prevent the fugitive dust emission. Frequent water sprinkling is being done on the ash and coal transportation roads.
(viii)	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 be 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 found to be within 0.4 Kg/ MT of Aluminium produced. Regular monitoring of fugitive emission in the work zones is being carried out. The fluoride emission is being monitored on monthly basis and reporting to State Pollution Control Board. The summary of the monitoring report is attached as Annexure-1. (Refer page no. 12)
(ix)	Windbreakers shall be installed to restrict fugitive dust	:	Boundary wall with sufficient height provided to Smelter & Power to restrict the fugitive dust. Extensive sprinkling, at potential source of generation, is being carried out through fixed and mobile sprinklers to contain the fugitive dust.
(x)	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 Hirakud reservoir. Total raw water withdrawal from the reservoir was 4859379, KL @ 26699 KLD for the period October'21 to March '22.
(xi)	Wastewater generation shall not exceed 14,250 KLD for the expansion project. Wastewater generated from smelter shall be treated in	:	The wastewater generation from all the units is around 412 KLD (avg.) in Smelter & 1166 KLD

	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.		in CPP (avg.) for the period from October'21 to March '22. The wastewater generated from 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 RO based 350 KLD ETP. The cooling tower blow-down water of CPP is treated in 120 m3/Hr RO Plant and reused for cooling makeup. 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 & 2 x 100KLD.The treated water of these STPs water is reused inside plants for gardening. Monitoring of water quality is being carried out on monthly basis and the same is enclosed for the period October'21 to March'22. Refer annexure 1. (Refer page no. 18 to 20)
(xiii)	7650 TPA of solid waste generated, mainly the spent pot lining from 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 power plant shall be disposed 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 authorized agency i.e., M/s Green Energy Resources, Sambalpur and the Non-carbon (refractory) part is stored inside the well-ventilated covered sheds with concrete platform. The Aluminium dross generated in the process of Smelter is reprocessed inside the plant and disposed to authorized vendors for reprocessing. The used anode butts are being sent to Aditya Aluminium for conversion to green anode which is again sent back to Hirakud Smelter for use in Smelter. Other solid wastes from Smelter Plant, which are hazardous in nature, are disposed at the TSDF and other registered recyclers/re-processors. The captive SLF, designed as per the CPCB guideline, presently we are not disposing any waste inside the SLF. Coal ash, the solid waste generated from the process in CPP, and supplied to brick manufacturers, cement plants, low lying area

			filling, road making etc. Left over ash remains are sent to ash mound in conditioned form. 5,22,300 MT of ash was generated with 109.1 % utilization during the period October'21 to March '22. In addition to that 63,650 MT of ash was evacuated from ash mound for utilization. The ash generation and utilization are enclosed **as annexure-2.** (Refer page no.26)
(xiv)	Minimum Cycle of Concentration (COC) for the CPP shall be 5.0	:	The CoC is being maintained above 5 in all the operating units of CPP.
(xv)	Minimum of 33 % of total land area shall be developed as green belt with local species in consultation and as per the CPCB's guidelines.	:	More than 33% of total land area including solid waste disposal sites has been green covered under greenbelt. The details of plantation done is enclosed as annexure -2 (Refer page no. 27).
(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 for Aluminium sector are being strictly 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. The all required pollution control measures like ESPs, BF, FTPs, ETP & STP, Stacks and pollution control measures has been installed for these installed 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 State Pollution Control Board through its CTO are 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 has 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	:	The ambient air quality is being monitored at 7 locations of Smelter, 8 locations in core & buffer zones of CPP regularly. Ref annexure-1 & 2 (Refer page no. 13 to 15 & 24 to 25) for summary of the AAQ monitoring report. For the online monitoring of ambient air quality 5 no's CAAQMS (2 no's inside Smelter premise & 3 no's inside CPP premise) have

	well as where maximum ground level concentrations are anticipated.		been installed in Smelter & CPP Complex. 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 and SPCB/CPCB every six months and posted on the Website of the Project Authority	:	Data on ambient air quality, fugitive emissions, stack emissions and water effluent quality are being regularly submitted to Eastern Regional Office through six monthly compliance reports. The data for the period October'2021 to March'2022. Refer to **annexure-1 & 2.** The six-monthly compliance report is posted in company's website. (Ref: 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. Report of water quality is enclosed for kind reference. The summary of the test reports attached as **annexure 1 & 2 (Refer page no. 18 to 20 & 23)**
(vi)	The project authorities shall strictly comply with the rules and guidelines under 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 collection, treatment, storage, and disposal of hazardous wastes. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989	:	Authorization for Management and Handling of Hazardous Waste has been obtained from State Pollution Control Board for Smelter, CPP and FRP separately. The conditions stipulated in the authorizations are being strictly followed as per Hazardous Waste (Management, Handling and Transboundary Movement) Rule 2016 and its amendments time to time.
(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 Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time)	:	Noise quality in and around the plants is being monitored regularly. These are confirming to the standards prescribed under Environment (Protection) Act, 1986. The noise level data for the period October' 2021 to March'2022 is enclosed as annexure - 2 (Refer page no. 30)
(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 on a regular basis and records are maintained.
(ix)	Training shall be imparted to all employees on safety and health aspects of chemicals 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 issues. Pre-employment and routine periodical medical examinations for all employees are being undertaken on regular basis.

			For the period October'2021 to March'2022 the health surveillance statistics are as follows: Pre–employment health surveillance against new recruitment- 2642 peoples. Periodic medical health surveillance for permanent employees- 1677 peoples. Periodic medical health surveillance for contractual employees- 1299 peoples.
(x)	Usage of PPEs by all employees/ workers shall be ensured	:	Use of PPEs by all the employees and workers are being strictly ensured in unit.
(xi)	The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water	:	Although two studies carried out earlier for the feasibility of rainwater harvesting in the area had recommended not to adopt the practice for shallow ground water table, presence of hard rock, rising trend of ground water level, etc., we are exploring rainwater harvesting in nearby area. A fresh study on rainwater harvesting is being carried out with the help of a reputed firm to explore the feasibility.
(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 safeguard proposed in the EIA/EMP. All the recommendations made in respect of environmental management and risk mitigation measures relating to the project shall be implemented.
(xiii)	The company will undertake all relevant measures, as indicated during the Public Hearing for improving the Socio-economic conditions of the surrounding area. CSR activities will be undertaken by involving local villages and administration	:	The company is undertaking various socio-economic development projects in the surrounding areas involving local SHGs. The CSR activities for the period October'2021 to March'2022 is enclosed as **Annexure 3**. (Refer page no. 31)
(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 October'2021 to March'2022 is Rs. 60.05 Lakhs and from April'21 to March'22 total 123.39 Lakhs have been spent towards community development projects including rural periphery development at Hirakud Localities.
(xv)	A separate Environmental Management Cell equipped with full-fledged laboratory facilities	:	A separate Environmental Management Cell with adequate laboratory facility at Smelter &

	shall be set up to carry out the Environmental Management and Monitoring functions.		CPP Complex is provided, 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 being submitted on or before 1st of June & 1st of December each year and is being uploaded in 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 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.	:	Public was informed through advertisements in three widely circulated regional newspapers namely: (1) The Dharitri, Dated 12th February 2008 (2) The Agnisikha, Dated 12thFebruary, 2008 & (3) The Sambad, Dated 14thFebruary, 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, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	:	The funds for the expansion has been arranged from company own sources in phased manner. Therefore, financial closure was not applicable for this project. The first CTO for the 146 KTPA to 216 KTPA has been granted by OSPCB vide letter no. 7250/IND-I-CON-32, dated 08.05.2014.
(xix)	The Ministry may revoke or suspend the clearance, if 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' 2022
3.0.1	All the specific and general conditions shall remain unchanged and have to be complied in Toto and paripassu.	:	It is being complied with.
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).	:	There will be no change or modification of the ultimate capacity of Smelter Plant as well as Captive Power Plant without prior intimation and clearance from MOEF &CC.
3	All the emissions (ambient air, stack, fugitive and fluoride emissions) shall be within the permissible limit as prescribed in the Environmental Clearance dated 6thFebruary, 2008.	:	All the emissions are within the prescribed limit. Monitoring reports are enclosed
4	No additional land shall be acquired.	:	No additional land will be acquired for the expansion activities.
5	No additional water shall be used.	:	No additional water, other than the quantity mentioned in the EC, will be used.
6	A copy of clearance letter shall be sent by the proponent to 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 clearance letter shall also be put on the website of the company by the proponent.	:	Copy of the clearance letter was submitted to local Urban local body after receiving the same.
7	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their web site 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 report of compliance of conditions of the Environment Clearance is submitted to Regional Office of Ministry of Environment & Forests & Climate Change (MoEF&CC), Bhubaneswar regularly in form of both soft and hard copies. The same is also uploaded in the website of the company. Critical sectorial environmental parameters are displayed in the main gates of both Smelter and Power Plant.
8	The project proponent shall also submit six monthly reports on the status of compliance of 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	:	Six monthly compliance of Environment Clearance (EC) conditions is submitted to the Regional Office of Ministry of Environment & Forests & Climate Change (MoEF&CC), Bhubaneswar regularly in form of soft copies.

	Bhubaneswar / CPCB/ OPCB shall monitor the stipulated conditions.		
9	The environmental statement for each financial year ending 31st March in Form-V as 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 State Pollution Control Board and MOEF on or before 30th September every year and is being uploaded in company's website.
4.0	This letter is issued with prior approval from the Competent Authority.	:	Noted and accepted
5.0	This letter shall be kept with the environment clearance issued by the Ministry vide letter No.: J-11011/100/2006-IA. II(I), dated 6th February 2008.	:	Complied.

(Authorized Signatory)

ADITYA BIRLA
HINDALCO

ANNEXURE – 1

ENVIRONMENTAL QUALITY PARAMETERS OF SMELTER

(October'2021 to March' 2022)

1. **STACK EMISSION FUME TREATMENT PLANT (DRY SCRUBBERS) done through NABL approved Laboratory**

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

Stack	Parameter	UOM	STD	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22	Average
FTP -I Stack-1	Particulate Matter	mg/Nm3	100	10.8	11.4	12.6	14.6	13.8	12.4	12.6
	Total Fluoride	Kg/MT.Al	0.3	0.12	0.12	0.15	0.18	0.16	0.15	0.14
	Hydrocarbon	ppm	-	3.66	13.03	13.21	12.63	12.90	4.01	9.90
FTP -I Stack-2	Particulate Matter	mg/Nm3	100	11.8	12.1	11.8	12.2	12.6	10.7	11.86
	Total Fluoride	Kg/MT.Al	0.3	0.13	0.13	0.14	0.18	0.15	0.15	0.14
	Hydrocarbon	ppm	-	4.89	14.67	14.01	13.06	13.80	3.89	10.72
FTP -2 Stack-3	Particulate Matter	mg/Nm3	100	14.6	10.1	14.3	10.8	9.4	14.4	12.26
	Total Fluoride	Kg/MT.Al	0.3	0.16	0.18	0.20	0.19	0.19	0.17	0.18
	Hydrocarbon	ppm	-	5.18	13.34	10.88	12.78	14.88	5.11	10.36
FTP -3 Stack-4	Particulate Matter	mg/Nm3	100	12.3	13.6	12.8	11.7	14.88	11.9	12.86
	Total Fluoride	Kg/MT.Al	0.3	0.07	0.15	0.14	0.13	0.11	0.11	0.11
	Hydrocarbon	ppm	-	3.56	11.95	9.12	11.91	14.01	4.62	9.19
FTP - 4 Stack-5	Particulate Matter	mg/Nm3	100	13.1	11.7	14.3	13.6	12.7	10.8	12.7
	Total Fluoride	Kg/MT.Al	0.3	0.10	0.09	0.09	0.14	0.11	0.10	0.10
	Hydrocarbon	ppm	-	5.78	12.66	15.29	13.79	11.31	5.44	10.71

2. **FUGITIVE EMISSION: Total Fluoride: Unit: Kg/MT. Al.** **Standard: 0.4 kg/MT. Al.**

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
PR –VII, RS End, 85 KA	0.32	0.31	0.32	0.30	0.32	0.33
235 KA Pot Area	0.29	0.28	0.30	0.31	0.30	0.31

3. **AMBIENT AIR MONITORING REPORTS** (by NABL approved External Lab)

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

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Pump House near Adm. Building	45.02	49.57	47.22	51.92	54.22	58.72
R&D Building	46.12	46.72	48.35	54.42	55.45	56.17
Rectifier Station #4 (80 Pot, 235 KA)	47.27	52.17	48.65	57.4	56.22	57.27
Near Cast House #4 (80 Pot, 235 KA)	44.32	50.22	50.37	59.12	59.15	60.42
Near SPL Shed	44.95	48.82	50.40	60.47	60.32	54.8
Near Ram Mandir	45.07	49.37	46.05	48.52	51.67	50.10
Hindalco Club Colony	44.90	49.65	48.50	51.75	55.5	53.82

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

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Pump House near Adm. Building	34.40	32.15	32.67	28.70	26.60	29.55
R&D Building	36.00	30.50	31.97	29.05	31.10	28.17
Rectifier Station #4 (80 Pot, 235 KA)	35.12	33.20	32.12	31.67	32.55	34.15
Near Cast House #4 (80 Pot, 235 KA)	33.47	33.02	32.42	35.75	33.32	37.67
Near SPL Shed	35.15	27.97	31.37	33.42	27.42	33.95
Near Ram Mandir	26.90	30.10	29.35	25.75	30.52	32.00
Hindalco Club Colony	35.67	28.40	30.45	26.17	25.45	29.87

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

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Pump House near Adm. Building	6.70	7.40	7.50	7.55	7.20	7.85
R&D Building	6.57	7.37	8.07	7.52	7.47	7.12
Rectifier Station #4 (80 Pot, 235 KA)	6.70	7.17	8.05	6.90	7.32	7.97
Near Cast House #4 (80 Pot, 235 KA)	6.60	7.65	7.85	7.30	7.45	8.42
Near SPL Shed	6.55	7.20	8.10	7.05	7.22	8.15
Near Ram Mandir	6.52	6.97	7.27	6.55	7.42	8.10
Hindalco Club Colony	24.05	7.07	7.57	6.52	7.12	7.77

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

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Pump House near Adm. Building	24.87	25.85	26.42	25.6	26.30	26.35
R&D Building	23.67	25.07	24.62	28.27	25.67	29.7
Rectifier Station #4 (80 Pot, 235 KA)	22.70	23.57	27.65	32.42	25.72	29.65
Near Cast House #4 (80 Pot, 235 KA)	22.72	27.17	28.40	29.32	26.25	33.27
Near SPL Shed	21.15	24.60	26.72	30.57	25.85	29.90
Near Ram Mandir	20.25	24.70	23.17	21.02	25.87	22.52
Hindalco Club Colony	21.30	22.55	24.52	19.78	19.62	24.32

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

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Pump House near Adm. Building	0.63	0.75	0.69	0.80	0.86	0.79
R&D Building	0.64	0.85	0.77	0.71	0.70	0.70
Rectifier Station #4 (80 Pot, 235 KA)	0.68	0.83	0.90	0.79	0.8	0.87
Near Cast House #4 (80 Pot, 235 KA)	0.53	0.75	0.81	0.84	0.71	0.86
Near SPL Shed	0.60	0.80	0.80	0.84	0.76	0.74
Near Ram Mandir	0.48	0.75	0.73	0.67	0.87	0.81
Hindalco Club Colony	0.58	0.76	0.62	0.71	0.62	0.63

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

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Pump House near Adm. Building	23.73	24.50	24.63	23.4	28.6	29.85
R&D Building	23.17	26.10	27.65	25.8	<20.0	26.77
Rectifier Station #4 (80 Pot, 235 KA)	24.25	24.10	30.60	23.03	22.9	29.13
Near Cast House #4 (80 Pot, 235 KA)	21.37	25.13	30.20	21.93	21.53	29.25
Near SPL Shed	21.55	24.55	28.40	23.72	22.5	27.97
Near Ram Mandir	20.6	25.93	28.20	<20.0	19.32	22.45
Hindalco Club Colony	22.4	25.70	28.70	20.93	16.65	24.23

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

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Pump House near Adm. Building	20.37	20.75	22.30	24.4	20.35	20.72
R&D Building	19.12	19.67	20.92	22.6	16.25	22.37
Rectifier Station #4 (80 Pot, 235 KA)	18.95	18.37	23.15	23.67	21.57	23.97
Near Cast House #4 (80 Pot, 235 KA)	18.75	21.82	22.77	20.20	21.52	26.92
Near SPL Shed	17.42	18.95	22.27	22.10	21.65	21.55
Near Ram Mandir	15.05	19.92	18.37	17.65	22.1	18.47
Hindalco Club Colony	16.52	17.55	19.87	19.35	22.30	18.80

Note: Ozone (O3):- 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

4. **FORAGE FLUORIDE: Unit: ppm** **Monthly Average Standard: 80 ppm**

Sl. No.	Location	Distance	Result					
			Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	Nuajamda	0.5 km NE	30.75	35.95	35.25	35.45	33.35	33.20
2	Gundru Para	1.0 km NE	21.50	24.40	24.55	24.80	26.35	26.20
3	Mahammadpur	2.0 km NE	17.50	23.90	23.20	24.05	24.05	23.90
4	Budhakanta	3.0 km NE	13.00	16.40	18.20	18.05	21.35	21.20
5	Backside of RS-IV	0.5 km SE	31.35	35.60	31.40	31.85	33.85	33.70
6	Nuagujatal	1.0 km SE	23.50	26.40	26.70	26.75	26.35	26.20
7	Rajapara	2.0 km SE	17.35	22.00	22.70	22.05	23.85	23.70
8	Silipathar	3.0 km SE	12.20	17.30	18.10	18.50	20.05	19.90
9	Larpang	5.0 km SE	8.60	8.40	7.70	8.20	8.65	8.50
10	Riverside Colony	0.5 km NW	25.15	29.90	27.70	28.10	27.60	27.45
11	Gujatal (near ITI)	1.0 km NW	22.15	26.85	26.20	25.55	24.70	24.55
12	Durgamandir	0.5 km SW	19.55	23.70	25.00	25.25	25.90	25.75
		Average Month	**20.22**	**24.23**	**23.89**	**24.05**	**24.67**	**24.52**

5. **GROUND WATER ANALYSIS: Parameter: F- Unit: mg/l**

Location of sampling	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
Sludge pit test well (E)	0.53	0.58	0.56	0.54	0.53	0.51
Sludge pit test well (W)	0.59	0.49	0.50	0.47	0.49	0.47
Sludge pit test well (N)	0.42	0.37	0.36	0.38	0.35	0.38
Sludge pit test well (S)	0.51	0.55	0.62	0.60	0.58	0.55
Tube well near sludge pit	0.28	0.29	0.62	0.31	0.35	0.31

6. **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'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	pH	-	6.5-9.0	6.58	7.33	6.97	6.57	6.88	6.80
2	TSS	mg/l	100	<2.5	BDL	BDL	BDL	BDL	BDL
3	TDS	mg/l	2100	57.0	32.0	29.0	52.0	16.0	16.0
4	Fluoride	mg/l	2.0	0.3	0.19	0.44	0.48	0.56	0.40
5	OIL & GREASE	mg/l	10.0	<1.4	BDL	BDL	BDL	BDL	BDL
6	BOD	mg/L	30	<2.0	BDL	BDL	BDL	BDL	BDL
7	COD	mg/l	250.0	<4.0	4.0	BDL	8.0	8.0	BDL
8	Chromium hexavalent	mg/l	0.1	<0.01	BDL	BDL	BDL	BDL	BDL
9	Cyanide	mg/l	0.2	<0.01	BDL	BDL	BDL	BDL	BDL
10	Free ammonia	mg/l	5.0	<1.0	BDL	BDL	BDL	BDL	BDL
11	Total Nitrogen	mg/l	100.0	<0.3	BDL	BDL	BDL	BDL	BDL
12	Total Chromium	mg/l	2.0	<0.01	BDL	BDL	BDL	BDL	BDL

(i) **ETP (CPP side) 350 KLD**

SL. NO.	Parameter	Unit	Limit	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	pH	-	6.5-9.0	7.12	6.62	6.75	6.62	6.65	6.78
2	TSS	mg/l	100	4.0	BDL	BDL	BDL	BDL	BDL
3	TDS	mg/l	2100	54.0	30.0	32.0	65.0	14.0	20.0
4	Fluoride	mg/l	2.0	0.2	0.26	0.40	0.27	0.94	0.32
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	8.0	BDL	4.0	8.0	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	BDL	BDL	BDL	BDL	0.32	0.36
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'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	pH	-	6.5-9.0	7.22	6.58	7.38	6.52	6.58	7.55
2	TSS	mg/l	100	4.2	BDL	BDL	BDL	BDL	BDL
3	TDS	mg/l	2100	34.0	27.0	31.0	46.0	12.0	14.0
4	Fluoride	mg/l	2.0	0.37	BDL	0.27	BDL	BDL	0.18
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	8.0	8.0	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		BDL	BDL	BDL	BDL	BDL	BDL
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'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	pH	-	6.5-9.0	6.51	6.35	6.44	6.96	6.59	6.94
2	TSS	mg/l	100.0	45.0	3.0	22.0	BDL	BDL	BDL
3	BOD	mg/l	30	8.0	3.8	8.0	BDL	BDL	BDL
4	Fecal Coliform(FC)	Mpn / 100 ml	1000 (max)	270.0	340.0	450.0	92.0	210.0	490

(iii) Plant STP (CPP side) 300 KLD

SL. NO.	Parameter	Unit	Limit	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	pH	-	6.5-9.0	6.78	6.63	6.58	6.85	6.83	6.63
2	TSS	mg/l	100.0	23.0	6.0	21.0	13.0	13.0	7.0
3	BOD	mg/l	30	10.0	4.2	9.0	15.0	4.6	4.2
4	Fecal Coliform(FC)	Mpn / 100 ml	1000 (max)	320.0	430.0	490.0	430.0	170.0	240

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

SL. NO.	Parameter	Unit	Limit	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	pH	-	6.5-9.0	7.26	7.41	7.06	7.62	7.35	6.60
2	TSS	mg/l	100.0	21.0	BDL	14.0	BDL	BDL	3.0
3	BOD	mg/l	30	12.0	BDL	12.0	20.0	BDL	4.4
4	Fecal Coliform(FC)	Mpn / 100 ml	1000 (max)	440.0	490.0	560.0	760.0	450.0	340

(v) **Colony STP (Main Colony) 400 KLD**

SL. NO.	Parameter	Unit	Limit	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1	pH	-	6.5-9.0	7.10	6.65	6.76	7.12	7.09	7.13
2	TSS	mg/L	100.0	24.0	BDL	12.0	16.0	BDL	BDL
3	BOD	mg/L	30	15.0	BDL	16.0	BDL	BDL	BDL
4	Fecal Coliform(FC)	Mpn / 100 ml	1000 (max)	450.0	450.0	230.0	140.0	240.0	120

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ANNEXURE-2

ENVIRONMENTAL QUALITY PARAMETERS OF CPP
(April 2021 - September 2021)

STACK EMISSION
(October 2021 - March 2022)
Unit # I

Process attached to the unit : Boiler # 1 &2 Stack

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	mg / Nm^3			
	Standard	mg / Nm^3	mg / Nm^3	600	600	

STACK EMISSION
(October 2021 - March 2022)
Unit # II

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

Sl.No.	Month / Year	Unit	PM	SO_2	NO_x	Hg
01.	October	mg / Nm^3	41.70	394.55	192.85	0.0060
02.	November	mg / Nm^3	41.98	392.68	176.55	0.0062
03.	December	mg / Nm^3	41.40	388.10	185.50	0.0065
04.	January	mg / Nm^3	42.80	408.20	202.25	0.0060
05.	February	mg / Nm^3	42.60	405.75	220.40	0.0070
06.	March	mg / Nm^3	41.22	408.15	188.77	0.0070
Average		mg / Nm^3	mg / Nm^3	**399.57**	**194.39**	**0.0065**
Standard		mg / Nm^3	mg / Nm^3	600	450	0.03

STACK EMISSION
(October 2021 - March 2022)
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	42.05	402.62	189.83	0.0064

02.	November	mg / NM^3	42.27	390.97	194.32	0.0067
03.	December	mg / Nm^3	39.68	400.67	198.55	0.0070
04.	January	mg / Nm^3	40.40	405.50	205.28	0.0070
05.	February	mg / Nm^3	43.05	404.48	221.88	0.0074
06.	March	mg / Nm^3	42.58	392.15	206.73	0.0069
	Average	mg / NM^3	mg / Nm^3	**399.4**	**202.77**	**0.0069**
	Standard	mg / NM^3	mg / Nm^3	600	450	0.03

STACK EMISSION

(October 2021 - March 2022)

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	40.33	390.62	187.42	0.0060
02.	November	mg / Nm^3	42.78	411.65	201.38	0.0068
03.	December	mg / Nm^3	39.32	385.32	179.82	0.0065
04.	January	mg / Nm^3	42.68	383.85	194.37	0.0062
05.	February	mg / Nm^3	44.43	387.55	197.97	0.0066
06.	March	mg / Nm^3	34.87	387.97	191.27	0.0065
	Average	mg / NM^3	mg / Nm^3	**391.16**	**192.04**	**0.0064**
	Standard	mg / NM^3	mg / Nm^3	600	450	0.03

STACK EMISSION

(October 2021 - March 2022)

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	42.90	412.80	208.48	0.0068
02.	November	mg / Nm^3	35.13	396.48	190.70	0.0066
03.	December	mg / Nm^3	39.88	384.08	176.95	0.0061
04.	January	mg / Nm^3	41.38	389.78	192.60	0.0058
05.	February	mg / Nm^3	41.68	383.15	201.70	0.0062
06.	March	mg / Nm^3	31.78	402.05	204.10	0.0067
	Average	mg / NM^3	**38.79**	**394.72**	**195.76**	**0.0064**
	Standard	mg / NM^3	50	600	450	0.03

ADITYA BIRLA
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TREATED EFFLUENT WATER ANALYSIS REPORT

(October 2021 - March 2022)

INDUSTRIAL PROCESS EFFLUENT (CPP):

Sl.	PARAMETERS	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'2
1	Color & Odour	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless
2	pH at 25°C	7.83	7.65	7.74	7.53	7.62	7.66
3	Turbidity	2.4	2.1	2.7	1.9	3.2	2.8
4	Total Suspended Solids (as TSS)	14.0	17.0	22.0	18.0	24.0	21.0
5	Total Dissolved Solids (as TDS)	519.0	547.0	561.0	520.0	553.0	519.0
6	Oil & Grease (as O & G)	3.2	2.8	3.4	2.4	3.2	2.0
7	Total Residual Chloride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
8	Ammonical Nitrogen (as NH_3-N)	1.4	1.7	1.5	1.2	2.3	1.7
9	Total Kjeldahl Nitrogen (as N)	3.8	4.3	3.8	3.1	3.8	3.2
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° C)	8.3	7.6	8.5	7.8	8.6	8.0
12	Chemical Oxygen Demand (as COD)	48.0	40.0	42.0	36.0	40.0	34.0
13	Arsenic (as As)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
14	Mercury (as Hg)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
15	Lead (as Pb)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Cadmium (as Cd)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
17	Hexavalent Chromium (as Cr^{+6})	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
18	Total Chromium (as Cr)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
19	Copper (as Cu)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Zinc (as Zn)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Selenium (as Se)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
22	Nickel (as Ni)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Cyanide (as CN)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Fluoride (as F)	0.76	0.83	0.91	0.78	0.94	0.82
25	Dissolved phosphate (as P)	1.2	0.94	1.16	0.82	0.76	0.65
26	Sulphide (as S)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
27	Phenolic Compound (as C_6H_5OH)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
28	Manganese (as Mn)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
29	Iron (as Fe)	0.57	0.51	0.56	0.52	0.57	0.61
30	Vanadium (as V)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
31	Nitrate Nitrogen (as NO_3-N)	2.2	2.7	2.3	1.9	1.7	2.4
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

ADITYA BIRLA
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AMBIENT AIR MONITORING, (CPP)

(October 2021 - March 2022)

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

Location	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
FHP Control Room Top	90.40	84.0	88.0	85.30	89.70	92.40
120^0 NNE (Near Hindalco Admn. Building)	59.20	62.0	68.2	65.70	64.30	61.60
240^0 SSE (Rajapada village)	77.40	86.0	81.0	72.50	68.20	65.30
(Hindalco Club)	71.30	76.0	78.0	69.80	64.60	59.80
Jyoti Vihar, Burla	78.20	74.0	77.0	70.60	67.80	62.70
Ash Mound Road	88.60	83.0	87.0	82.00	85.3	88.30
Ash Mound area	89.70	82.0	80.0	78.70	75.4	71.60

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

Location	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
FHP Control Room Top	22.30	24.50	28.6	29.70	30.40	27.60
(Near Hindalco Admn. Building)	10.50	13.20	15.4	14.70	13.20	13.80
(Rajapada village)	11.70	12.60	14.3	13.50	12.60	13.30
(Hindalco Club)	10.70	12.20	14.7	11.80	12.20	11.50
Jyoti Vihar, Burla	15.30	14.60	17.5	15.40	13.80	11.70
Ash Mound Road	18.40	21.30	23.8	24.60	22.70	23.60
Ash Mound area	22.10	23.70	22.4	20.70	21.60	20.10

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

Location	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
FHP Control Room Top	16.10	19.70	22.40	24.60	23.80	20.20
(Near Hindalco Admn. Building)	19.80	21.60	24.20	23.80	25.20	22.60
(Rajapada village)	20.50	21.70	20.80	21.50	19.70	21.30
(Hindalco Club)	18.30	22.30	23.20	20.30	20.60	18.80
Jyoti Vihar, Burla	29.20	31.30	29.70	28.80	27.60	26.30
Ash Mound Road	24.70	29.20	28.70	32.40	31.10	29.30
Ash Mound area	31.30	34.50	31.80	30.30	28.80	25.70

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

Location	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
FHP Control Room Top	53.20	49.30	50.40	48.20	48.80	50.80
Near Hindalco Admn. Building	33.50	35.50	38.50	35.80	34.80	33.20
Rajapada village	41.60	48.20	47.30	39.80	36.10	34.70
Hindalco Club	38.80	42.60	44.80	37.50	35.70	32.10
Jyoti Vihar, Burla	43.70	41.80	44.70	38.30	36.80	34.30
Ash Mound Road	49.30	47.50	49.20	45.0	47.20	50.40
Ash Mound area	51.40	46.10	45.50	50.60	41.0	41.60

STATUS OF UTILISATION OF FLY ASH AND BOTTOM ASH FROM CPP

(October 2021 - March 2022)

Sl. No	Description	Quantity(MT)
1	Quantity of fly ash generated (MT)	470071
2	Quantity of bottom ash generated (MT)	52229
	Total ash generated (MT)	522300
3	Supply to Brick Manufacturing Units (MT)	199239
4	Supply to Cement Plants (MT)	178546.34
5	Land Filling (MT)	48760.02
6	Utilization in Embankment / Dyke Raising (MT)	**19837**
7	Utilization in other purposes (road making etc.) (MT)	57757.64
Total Ash Utilized (MT)		**567790**
Total ash utilization %		**109.1**

Note: 63650 MT of additional ash has been evacuated from mound.

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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,
Total	**697448**	**370.17***	

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

ADITYA BIRLA
HINDALCO

ENVIRONMENTAL EXPENDITURE

(October 2021 - March 2022)

01.	Waste Management Cost (Fly Ash, SPL, Dross and other wastes)	:	Rs.	1652.32	Lakh
02.	Air Emission Control – O&M cost of ESP, FTPs, Ash Handling Plant including Ash Silo & CHP DES etc	:	Rs.	2308.01	Lakh
03.	Environmental Monitoring expenses	:	Rs.	10.93	Lakh
04.	Wastewater Treatment Cost	:	Rs.	106.18	Lakh
05.	CEMS/AAQMS/WEQMS/CCTV Camera			14.31	Lakh
	TOTAL	:	**Rs.**	**4091.75**	**Lakh**

SULPHUR CONTENT IN FED COAL

(October 2021 - March 2022)

Sl.	Month	Unit	Results
01.	October	%	0.40
02.	November	%	0.40
03.	December	%	0.40
04.	January	%	0.76
05.	February	%	0.44
06.	March	%	Not Available
Average		%	0.48

AMBIENT NOISE QUALITY DATA (CPP)

(October 2021 - March 2022)

Sl. No.	Location	Category	Standard* Day / Night	Distance / Direction w.r.t Plant	Noise Level (Day/Night) in dB(A)					
					Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	March'22
1.	Riverside Colony	Residential	55/45	0.8 km / SW	48.8/41.4	48.9/42.5	48.0/41.7	46.9/40.4	48.3/41.8	49.8/43.6
2.	Tarasingh pada	Residential	55/45	0.2 km / S	48.6/40.7	48.4/39.8	47.7/38.4	48.2/39.6	46.8/38.3	47.9/40.4
3.	Christianp ada	Residential	55/45	0.1 km / S	50.9/42.0	49.3/40.2	49.3/41.6	48.9/40.5	49.0/43.3	50.0/42.7
4.	Power Plant Security Gate	Industrial	75/70	Plant Site	58.7/51.6	56.7/50.7	56.1/51.6	58.7/53.2	58.4/51.5	60.0/53.8
5.	Power Colony	Residential	55/45	0.4 km / NW	49.5/40.6	49.4/41.2	47.8/39.8	49.4/38.7	48.1/40.4	48.3/42.5

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

ADITYA BIRLA
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ANNEXURE –3

CSR Activities undertaken from October'2021 to March'2022 (Hirakud Smelter & Power)		
Activities	**Benefit Coverage in no's**	**Amount (Lacs)**
Education		
Scholarship for meritorious students	21	1.26
Monitoring & Evaluation of 3 Science Lab at high Schools	300	0.07
Remedial Classes for High School students	115	0.05
School infra	300	1.05
Total	**736**	**2.43**
Health		
Support to Family Planning operation camps	126	0.69
Mobile Health Clinic continuing in villages	2913	1.00
Immunisation Programme	1308	0.00
Tube Well repairing for community	200	0.20
HIV awareness on World AIDS Day	200	0.00
Awareness on Dengue, Malaria, COVID in Villages	2200	0.00
Mega blood donation camp at Hirakud	270	0.39
Vehicle and Tent house Support for Covid Care activities	7500	20.94
Total	**14717**	**23.22**
Sustainable Livelihood		
CSR Skill Centre Expenses	160	14.13
Tailoring Training Centre at Gadmunda , Budhakanta & Hirakud	120	0.47
Fruit Bearing Plant distribution to Farmers	125	0.14
Vegetable seed distribution to Framers	14	0.15
Mushroom Cultivation Training	30	0.02
Sales cum display stalls of SHG during Diwali	40	0.00
Fishery support to farmers	2	0.06
Total	**491**	**14.97**
Infrastructure Development		
Installation of CCTV at Burla	6000	6.59
Colouring of village Temple	800	0.73
Construction of Roads at Tarasinghpada cremation side and Silipathar to Nuapada	2000	8.35
Construction of Roads at Ngujatal and Nuapada	700	2.15
Total	**9500**	**17.82**
Social Causes		
Rangoli competition among SHG	45	0.11
Swachh Bharat abhiyan on Gandhi Jayanti	140	0.03
Support for Cycle journey of to give awareness among the people	1	0.25
support for social causes	400	0.29
Jhoti competition among SHG at Dengimachha	40	0.02
SHG Products display cum sales stall during Deewali stall at Hindalco Club	80	0.05
Sports activities in villages	800	0.86
Total	**1506**	**1.61**
Grand Total	**26950**	**60.05**