



Ref: HILS/HKD/22-23/122

28<sup>th</sup> November 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 April'22 to September'22**

Ref.: EC No.: (i) J-11011/400/2006-IA II (I), dated 6<sup>th</sup> 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 April'22 to September'22, along with data on environment quality of both the plants.

The compliances have been sent through mail id: [roez.bsr-mef@nic.in](mailto: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**

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**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- 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: 6 <sup>th</sup> February 2008, & Amendment J - 11011/144/2006-IA II (I), dated 19 <sup>th</sup> October 2009.
Period of Compliance Report	April'2022 to September'2022

Sl. No.	SPECIFIC CONDITIONS	Status as on 30 <sup>th</sup> Sept' 2022
(i)	<p>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.</p>	<p>Prebaked anode technology is being adopted in the existing Smelter Plant. All the Soderberg pots have already been converted to prebaked technology.</p> <p>All the 13 Boilers of 467.5 MW (1x 67.5 MW &amp; 4x 100 MW) Power Plant are of CFBC technology.</p>
(ii)	<p>The gaseous emissions (SO<sub>2</sub>, NO<sub>x</sub>, 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.</p> <p>On-line continuous monitoring system for particulate emissions, SO<sub>2</sub> and NO<sub>x</sub> shall be provided and shall make necessary arrangements for submission of on-line real time emission data to CPCB website.</p> <p>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.</p> <p>Low NO<sub>x</sub> burners shall be installed to control the NO<sub>x</sub> emissions.</p>	<p>The stack emission from Smelter &amp; CPP units confirms the emission standards prescribed 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 results is enclosed as <b>Annexure I&amp;II</b>.</p> <p>Online real-time fluoride and dust monitoring analyzers installed at all FTP stacks of Smelter. Opacity Monitors for Particulate Matter emission and Gas analyzers for SO<sub>2</sub>, NO<sub>x</sub> emission installed in all the stacks of CPP. Real time monitoring data is being transmitted to SPCB/CPCB RTDAS server.</p> <p>As the pollution control devices are attached to multiple continuous process operations (pots in case of Smelter and boilers in case of CPP), installation of interlocking facilities is not feasible. However, alarm systems have been installed for identification any kind of failure/tripping of pollution control systems attached to the operating units.</p> <p>In CPP, environment friendly CFBC boilers have been installed to each unit, which are low NO<sub>x</sub> producing in nature for the technology used in the boiler. The emission is well below the limit prescribed by OSPCB.</p>

(iii)	<p>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 be based on Sulphur content of fuel. 3 new stacks in the Power plant shall be provided with ESP.</p>	<p>: Two casting unit stacks &amp; one FTP stack in Smelter, two stacks in CPP have been installed in expansion project. Currently, Five Stacks of height 50m have been provided to all FTPs of Smelter and six stacks attached to casting units &amp; caster. No anode baking plant exists inside the smelting unit.  Stacks of height 130 m have been provided for each of the five units 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.</p>
(iv)	<p>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/Nm<sup>3</sup>. SPM emissions from Captive Power Plant shall be less than 100 mg/NM<sup>3</sup>.  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.</p>	<p>: 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 Green anodes from nearby sister concern M/s Aditya Aluminium are used in the smelting process. The particulate matter, fluoride emissions and forage fluoride in grass are being monitored monthly for the impact of Smelter Plant operation and reported to SPCB and Ministry through half yearly compliance reports. All the processes of Smelter Plant &amp; CPP meet the prescribed norms, monitoring results of which is enclosed as <b>Annexure I &amp; II</b>.</p>
(v)	<p>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.</p>	<p>: Regular monitoring of fluoride in surface water, ground water as well as ambient air &amp; 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 analysis results are enclosed as <b>Annexure I</b>.</p>
(vi)	<p>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.</p>	<p>: Alumina for Smelter Plant is transported from Alumina Refinery at Rayagada, Odisha &amp; Muri, Jharkhand through BTAP wagons &amp; bulkers respectively and stored in dedicated Alumina silos for use in pots through pneumatic conveying.   The coal for the Power Plant is transported from various sources through BOXN wagons of Railways 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 fugitive emission. Fugitive dust in the roads is suppressed by water sprinkling through mobile water tankers.</p>

(vii)	<p>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.</p>	<p>: 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.</p> <p>Control of fugitive emission in CPP is ensured by central de-dusting system with suction hoods and bag filters provided in the crusher houses and ash silos 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. Adequate ash conditioning is being ensured before ash unloading from ash silo to prevent fugitive dust emission. Frequent water sprinkling is being done on the ash and coal transportation roads.</p>
(viii)	<p>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.</p>	<p>: The fugitive fluoride emission from the pot room is found to be around 0.31 Kg/ MT of Aluminium produced. Regular monitoring of fugitive emission in the work zones is being carried out.</p> <p>The fluoride emission is being monitored with submission of reports to the State Pollution Control Board on monthly basis. The summary of the monitoring report is attached as <b>Annexure-I</b>.</p>
(ix)	<p>Windbreakers shall be installed to restrict fugitive dust</p>	<p>: Boundary wall with sufficient height provided to Smelter &amp; 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.</p>
(x)	<p>The water requirement for the expansion project shall not exceed 69,600 KLD and shall be sourced from the Hirakud reservoir</p>	<p>: The raw water for the Smelter &amp; CPP Complex is being sourced from Hirakud reservoir. Total raw water withdrawal from the reservoir was 4985336 KL @ 27243 KLD for the period April'22 to Sept '22.</p>
(xi)	<p>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.</p>	<p>: The wastewater generation from all the units is around 442550 KL @2418 KLD for the period April'22 to Sept '22.</p> <p>The wastewater generated. of Effluent Treatment Plants (ETPs) of capacity 250 KLD, 350 KLD and 50 KLD and reused in cooling towers. The earlier installed Rotating Biological Contactor (RBC) has been replaced with RO based 350 KLD ETP.</p>

		<p>The cooling tower blow-down water of CPP is treated in ETP (RO Plant) of capacity 120 m<sup>3</sup>/hr and the outlet water is reused for cooling. Wastewater from other processes is being treated to meet the standards before reuse in various in-house activities and cooling towers.</p> <p>The domestic wastewater of three plants and colonies is treated in STPs of capacities 500 KLD, 400 KLD, 300 KLD &amp; 100 KLD. The treated water of these STPs water is reused inside plants for gardening.</p> <p>Monitoring of treated water quality is being carried out on monthly basis, the results of which is enclosed in <b>Annexure - I &amp; II</b> for the period April'22 to Sept '22.</p>
(xiii)	<p>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</p>	<p>The carbon part of spent pot lining is disposed to SPCB 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 within the premise. Mixed dust of SPL is sent to Ambuja Cement for co-processing.</p> <p>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 for re-use in Smelter at Hirakud. Other solid wastes from Smelter Plant, which are hazardous in nature, are disposed at the TSDF and other registered recyclers/re-processors. Presently we are not disposing any waste inside the captive SLF, designed as per the CPCB guideline.</p> <p>Coal ash, the solid waste generated from the process in CPP is utilized in brick manufacturing, cement manufacturing, low lying area filling, road making etc. Leftover ash, if any after utilization, is sent to ash mound in moisturized condition for disposal. 538731 MT of ash was generated with 91.3 % utilization during the period April'22 to September'22. In addition to that 11796 MT of ash was evacuated from ash mound for utilization. The ash generation and utilization is enclosed as <b>Annexure-2</b>.</p>

(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. The average CoC of the CPP during the period was 6.4.
(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.
(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 in EC & CTE. The all required pollution control measures like ESPs, Bag Filters, FTPs, ETPs & STPs, Stacks, etc. have been installed in Smelter & CPP, expenses of which are met from the fund from Corporate.
<b>B. GENERAL CONDITIONS:</b>			
(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 <sub>2</sub> , NO <sub>x</sub> , 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 of core zones of Smelter & CPP & 6 locations in buffer zones of Smelter & CPP regularly. The AAQ monitoring results for the period April'22 – September'22 is enclosed as <b>Annexure-I &amp; II</b> .  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 been installed in Smelter & CPP Complex. The real time data from these online monitoring stations is being transmitted to servers of SPCB & CPCB regularly.
(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	:	Data on ambient air quality, fugitive emissions, stack emissions and water effluent quality is being regularly submitted to Eastern Regional Office through six monthly compliance reports.

	and posted on the Website of the Project Authority		The data for the period April'22 - September'22 is enclosed as <b>Annexure-I &amp; II</b> . The six-monthly compliance report is posted on the company's website. (Ref: URL: <a href="http://www.hindalco.com/sustainability/regulatory-compliances">http://www.hindalco.com/sustainability/regulatory-compliances</a> )
(v)	Industrial wastewater shall be properly collected and treated so as to conform to the standards prescribed under GSR422 (E) dated 19 <sup>th</sup> May 1993 and 3rd December, 1993 or as amended from time to time	:	Wastewater is collected and treated in the ETPs of both Smelter & CPP to meet the standards. The treated water is reused as Cooling tower make-up. Analysis results of the treated water quality is enclosed as <b>Annexure I &amp; II</b> .
(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 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 (day time) and 70 dBA (night time)	:	Noise quality in and around the plants is being monitored regularly. These are confirming to the standards prescribed under the Environment (Protection) Act, 1986.  The noise level data for the period April' 2022 to September'2022 is enclosed in <b>Annexure II</b> for reference.
(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 April' 2022 to September'2022 the health surveillance statistics are as follows: Pre-employment health surveillance against new recruitment - 2283.  Periodic medical health surveillance for permanent employees - 848.  Periodic medical health surveillance for contractual employees- 1271.

(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 by the Safety department.
(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	:	For harvesting of rooftop rainwater system has been installed in the premises. Installation of more such systems in the colonies are under progress.
(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 have been 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 April'2022 to September'2022 is enclosed as <b>Annexure III</b> .
(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 eco-development programs in and around Hirakud involving local SHGs. Various welfare measures are undertaken.  During April'2022 to September'2022 Rs. 127.35 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 shall be set up to carry out the Environmental Management and Monitoring functions.	:	A separate Environmental Management Cell with adequate laboratory facility established at 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 on or before 1 <sup>st</sup> of June & 1 <sup>st</sup> of December each year and is uploaded in our Company website. Ref URL: <a href="http://www.hindalco.com/sustainability/regulatory-compliances">http://www.hindalco.com/sustainability/regulatory-compliances</a>
(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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> . This shall be advertised within seven days from the date of issue of the clearance letter, at least	:	Complied during implementation of project in 2008.



	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.	
(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.	: Financial closure of the project along with date of start of the project has been submitted to MoEF&CC vide letter dated 14th Nov 2019.
(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 19<sup>th</sup> October 2009.**

Sl. No	Conditions	Compliance status as on 30 <sup>th</sup> September' 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 has been no change or modification of the ultimate capacity of the Smelter as well as Captive Power Plant.
3	All the emissions (ambient air, stack, fugitive and fluoride emissions) shall be within the permissible limit as prescribed in the Environmental Clearance dated 6 <sup>th</sup> February, 2008.	: All the emissions are within the prescribed limit. Monitoring reports are enclosed for reference.
4	No additional land shall be acquired.	: No additional land has been acquired for the project except as specified in EC.
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 <sub>2</sub> , NO <sub>x</sub> (ambient levels as well as Stack	: 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 being uploaded in the website of the company. Critical sectoral environmental parameters are

	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.	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 Bhubaneswar / CPCB/ OPCB shall monitor the stipulated conditions.	: Six monthly compliance of Environment Clearance (EC) conditions along with the monitored data is submitted to the Regional Office of Ministry of Environment & Forests & Climate Change (MoEF&CC), Bhubaneswar regularly both in form of soft & hard copies.
9	The environmental statement for each financial year ending 31 <sup>st</sup> 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 MoEF by e-mail.	: The annual environmental statement in Form-V is being submitted to State Pollution Control Board and MoEF&CC on or before 30 <sup>th</sup> 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 6 <sup>th</sup> February 2008.	: Complied.

  
**(Authorized Signatory)**  




**ANNEXURE - I**

**ENVIRONMENTAL QUALITY PARAMETERS OF SMELTER**

**(April'2022 to September' 2022)**

**1. STACK EMISSION MONITORING: (through NABL approved Laboratory)**

Stack	Parameter	Unit	STD	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22	Average
FTP -I Stack-1	PM	mg/Nm <sup>3</sup>	100	10.2	12.8	13.8	11.7	10.8	11.2	<b>11.75</b>
	Fluoride (total)	Kg/t. Al.	0.3	0.12	0.15	0.15	0.13	0.14	0.15	<b>0.14</b>
	Hydrocarbon	ppm		3.21	2.89	3.89	4.01	3.66	3.27	<b>3.49</b>
FTP -I Stack-2	PM	mg/Nm <sup>3</sup>	100	13.6	12.4	11.3	12.8	11.6	13.8	<b>12.58</b>
	Fluoride (total)	Kg/t. Al.	0.3	0.13	0.16	0.14	0.15	0.16	0.15	<b>0.15</b>
	Hydrocarbon	ppm		4.01	3.75	4.02	3.45	4.01	4.89	<b>4.02</b>
FTP -2 Stack-3	PM	mg/Nm <sup>3</sup>	100	15.1	10.5	12.9	13.7	13.5	12.9	<b>13.10</b>
	Fluoride (total)	Kg/t. Al.	0.3	0.18	0.19	0.20	0.21	0.17	0.16	<b>0.19</b>
	Hydrocarbon	ppm		3.98	4.09	5.68	5.07	3.89	3.74	<b>4.41</b>
FTP -3 Stack-4	PM	mg/Nm <sup>3</sup>	100	10.4	13.6	10.7	10.6	11.9	14.6	<b>11.97</b>
	Fluoride (total)	Kg/t. Al.	0.3	0.09	0.11	0.12	0.10	0.15	0.14	<b>0.12</b>
	Hydrocarbon	ppm		4.10	5.16	3.94	2.87	4.79	5.10	<b>4.33</b>
FTP -4 Stack-5	PM	mg/Nm <sup>3</sup>	100	7.4	14.5	11.4	12.6	14.3	15.2	<b>12.57</b>
	Fluoride (total)	Kg/t. Al.	0.3	0.09	0.09	0.11	0.10	0.11	0.11	<b>0.10</b>
	Hydrocarbon	ppm		5.86	5.22	5.29	4.96	5.24	6.05	<b>5.44</b>

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

**Standard: 0.4 kg/MT. Al.**

Location of sampling	Unit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22	Average
PR - IV, Line-I	kg/MT of Aluminium produced	0.31	0.32	0.31	0.31	--	--	0.31
235 KA Pot Area		0.36	0.33	0.32	0.30	0.30	0.30	
PR - VII, Line-III		--	0.29	--	0.29	0.31	0.32	
PR-IX, Line-III		--	--	0.28	--	0.30	0.31	



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

**(i) Particulate Matter (PM<sub>10</sub>):** Unit:  $\mu\text{g}/\text{Nm}^3$  Standard:  $100 \mu\text{g}/\text{Nm}^3$  (24 hours)

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Pump House	51.72	50.67	52.02	50.55	52.57	50.80
R&D Building	55.20	52.92	50.65	51.10	50.05	48.57
Rectifier Station #4	56.45	59.95	57.02	58.70	58.70	59.52
Near Cast House #4	58.05	56.10	59.45	57.50	56.00	58.17
Near SPL Shed	53.40	54.50	55.72	56.15	55.85	56.95
Near Ram Mandir	50.30	51.40	53.42	53.62	49.45	49.00
Hindalco Club Colony	50.75	50.45	51.45	52.15	47.17	47.00

**(ii) Particulate Matter (PM<sub>2.5</sub>):** Unit:  $\mu\text{g}/\text{Nm}^3$  Standard:  $100 \mu\text{g}/\text{Nm}^3$  (24 hours)

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Pump House	28.67	28.37	31.65	27.57	32.75	30.47
R&D Building	31.60	29.05	30.17	32.77	30.75	28.90
Rectifier Station #4	34.85	32.15	31.80	30.77	31.77	30.65
Near Cast House #4	31.32	31.72	37.55	27.50	31.22	32.37
Near SPL Shed	33.12	33.87	34.25	28.40	29.87	31.45
Near Ram Mandir	33.75	31.87	33.25	28.00	24.82	28.90
Hindalco Club Colony	28.70	27.62	28.97	29.67	26.00	27.57

**(iii) Sulphur Dioxide (SO<sub>2</sub>):** Unit:  $\mu\text{g}/\text{Nm}^3$  Standard:  $80 \mu\text{g}/\text{Nm}^3$  (24 hours)

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Pump House	7.27	7.72	7.15	7.42	7.10	7.12
R&D Building	7.42	7.42	8.10	7.78	7.12	7.30
Rectifier Station #4	7.92	8.02	7.70	7.75	7.52	8.00
Near Cast House #4	7.85	7.25	7.87	7.30	7.47	7.52
Near SPL Shed	7.80	7.87	7.95	7.95	7.12	7.20
Near Ram Mandir	7.47	7.30	7.50	7.22	7.37	7.27
Hindalco Club Colony	7.35	7.30	7.15	7.32	6.92	6.90

**(iv) Nitrogen Dioxide (NO<sub>x</sub>):** Unit:  $\mu\text{g}/\text{Nm}^3$  Standard:  $80 \mu\text{g}/\text{Nm}^3$  (24 hours)

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Pump House	24.47	22.60	26.00	22.62	27.62	26.75
R&D Building	26.0	25.42	24.50	27.40	24.52	23.62
Rectifier Station #4	28.07	25.47	26.05	26.50	27.62	25.10
Near Cast House #4	27.65	26.27	31.15	21.22	25.65	28.37
Near SPL Shed	23.65	29.97	27.97	23.82	25.12	25.05
Near Ram Mandir	23.67	26.85	27.27	21.07	19.82	24.32
Hindalco Club Colony	24.02	23.62	23.92	26.02	22.70	21.77



**(v) Carbon Monoxide (CO): Unit:  $\mu\text{g}/\text{Nm}^3$  Standard:  $2 \text{ mg}/\text{Nm}^3$  (8 hours)**

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Pump House	0.70	0.69	0.51	0.58	0.62	0.66
R&D Building	0.60	0.70	0.63	0.61	0.62	0.54
Rectifier Station #4	0.78	0.66	0.68	0.73	0.67	0.63
Near Cast House #4	0.67	0.65	0.62	0.62	0.63	0.59
Near SPL Shed	0.72	0.71	0.67	0.61	0.66	0.60
Near Ram Mandir	0.74	0.69	0.71	0.59	0.60	0.59
Hindalco Club Colony	0.53	0.68	0.61	0.62	0.55	0.51

**(vi) Ozone (O<sub>3</sub>): Unit:  $\mu\text{g}/\text{Nm}^3$  Standard:  $100 \mu\text{g}/\text{Nm}^3$  (24 hours)**

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Pump House	20.02	24.6	22.45	22.30	22.37	27.20
R&D Building	24.40	24.50	20.7	23.60	24.75	21.80
Rectifier Station #4	23.65	28.10	25.10	25.77	24.97	32.10
Near Cast House #4	27.75	27.00	26.30	23.80	26.75	27.65
Near SPL Shed	19.25	26.06	22.83	22.20	24.30	20.75
Near Ram Mandir	20.8	22.8	23.70	22.4	24.60	18.50
Hindalco Club Colony	19.95	25.10	25.40	25.1	22.45	20.90

**(vii) Ammonia (NH<sub>3</sub>): Unit:  $\mu\text{g}/\text{Nm}^3$  Standard:  $400 \mu\text{g}/\text{Nm}^3$  (24 hours)**

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Pump House	22.60	18.77	21.30	17.42	25.70	21.72
R&D Building	21.42	20.42	19.92	21.52	18.20	18.27
Rectifier Station #4	25.10	20.22	21.12	21.32	21.50	19.50
Near Cast House #4	22.27	20.32	27.15	15.80	21.50	21.82
Near SPL Shed	20.1	20.65	19.25	17.87	19.52	29.45
Near Ram Mandir	18.8	21.57	20.37	18.47	16.75	24.00
Hindalco Club Colony	24.85	19.12	17.70	20.20	17.95	17.25

**Note:** Ozone (O<sub>3</sub>): - Lead (Pb): -  $<0.01 \mu\text{g}/\text{N m}^3$ , Nickel (Ni): -  $<5.0$ , Arsenic (As): -  $<1.0$ , Benzene (C<sub>6</sub>H<sub>6</sub>): -  $<4.2 \mu\text{g}/\text{N m}^3$  and Benzo Pyrene (BaP): -  $<0.5 \mu\text{g}/\text{N m}^3$  in all seven locations respectively.

**Standard as per NAAQ:** - O<sub>3</sub>(8 hours):  $100 \mu\text{g}/\text{m}^3$ , NH<sub>3</sub> (24 hours):  $400 \mu\text{g}/\text{m}^3$ , Pb (24 hours):  $1 \mu\text{g}/\text{m}^3$ , Ni (Annual):  $20 \mu\text{g}/\text{m}^3$ , As (Annual):  $6 \mu\text{g}/\text{m}^3$ , C<sub>6</sub>H<sub>6</sub> (Annual) :  $5 \mu\text{g}/\text{m}^3$ , BaP (Annual) :  $1 \mu\text{g}/\text{m}^3$



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

Sl. No.	Location	Distance	Result					
			Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	Nuajamda village	0.5 km NE	29.15	21.45	26.45	24.75	15.50	15.35
2	Gundru Para village	1.0 km NE	26.80	23.40	21.55	19.30	21.70	21.35
3	Mahammadpur village	2.0 km NE	27.55	24.70	23.75	21.75	19.45	19.65
4	Budhakata village	3.0 km NE	30.20	29.70	22.80	16.30	24.45	24.20
5	Backside of RS-IV	0.5 km SE	34.60	31.20	32.25	30.70	30.40	30.50
6	Nuagujatal village	1.0 km SE	29.50	29.70	29.50	27.60	27.25	26.95
7	Rajapara village	2.0 km SE	24.80	21.70	21.40	19.90	20.25	19.95
8	Silipathar village	3.0 km SE	21.25	19.70	19.10	17.25	16.95	16.80
9	Larpank village	5.0 km SE	10.95	9.30	15.70	14.30	14.65	14.45
10	Riverside Colony	0.5 km NW	30.85	26.45	26.25	24.25	24.35	24.00
11	Gujatal village	1.0 km NW	28.30	23.80	25.25	23.80	24.50	24.15
12	Durga Mandir	0.5 km SW	28.00	26.70	27.20	25.50	25.50	25.00
		<b>Average</b>	<b>26.83</b>	<b>23.98</b>	<b>24.26</b>	<b>22.11</b>	<b>22.07</b>	<b>21.86</b>

**5. GROUND WATER ANALYSIS: Parameter: Fluoride Unit: mg/L**

Location of sampling	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
Sludge pit test well (E)	0.52	0.56	0.51	0.55	0.52	0.56
Sludge pit test well (W)	0.48	0.45	0.43	0.42	0.45	0.43
Sludge pit test well (N)	0.36	0.36	0.31	0.35	0.36	0.32
Sludge pit test well (S)	0.52	0.55	0.59	0.57	0.58	0.55
Tube well near sludge pit	0.33	0.30	0.35	0.32	0.31	0.35

**6. ETP & STP TREATED WATER ANALYSIS: (by NABL approved External Lab)**

**(i) 250 KLD ETP outlet:**

Sl. No.	Parameter	Unit	Limit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	pH	-	6.5-9.0	6.75	7.56	6.81	6.79	6.55	7.96
2	TSS	mg/L	100	BDL	BDL	BDL	BDL	BDL	BDL
3	TDS	mg/L	2100	32.0	26.0	18.0	16.0	17.0	575.0
4	Fluoride	mg/L	2.0	0.22	0.26	0.21	0.19	BDL	0.42
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	4.0	BDL	BDL	8.0	8.0
8	Chromium (Cr6 <sup>+</sup> )	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	BDL	BDL	BDL	BDL
12	Chromium (total)	mg/L	2.0	BDL	BDL	BDL	BDL	BDL	BDL



**(ii) 350 KLD ETP outlet:**

Sl. No.	Parameter	Unit	Limit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	pH	-	6.5-9.0	6.78	6.98	6.71	6.84	7.02	6.58
2	TSS	mg/L	100	BDL	BDL	BDL	BDL	BDL	BDL
3	TDS	mg/L	2100	20.0	20.0	20.0	20.0	18.0	39.0
4	Fluoride	mg/L	2.0	0.32	BDL	BDL	BDL	BDL	BDL
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	12.0	BDL	BDL	BDL	8.0
8	Chromium (Cr6 <sup>+</sup> )	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	0.36	0.78	BDL	BDL	0.87	0.69
12	Chromium (total)	mg/L	2.0	BDL	BDL	BDL	BDL	BDL	BDL

**(iii) 50 KLD ETP outlet:**

Sl. No.	Parameter	Unit	Limit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	pH	-	6.5-9.0	7.55	6.72	7.12	8.5	7.31	6.69
2	TSS	mg/l	100	BDL	BDL	BDL	BDL	BDL	BDL
3	TDS	mg/l	2100	14.0	16.0	16.0	18.0	34.0	66.0
4	Fluoride	mg/l	2.0	0.18	BDL	BDL	BDL	BDL	BDL
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	4.0	BDL	8.0	4.0	4.0
8	Chromium (Cr6 <sup>+</sup> )	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	1.4	BDL	BDL	BDL	BDL
12	Chromium (total)	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**(iv) 500 KLD STP outlet:**

Sl. No.	Parameter	Unit	Limit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	pH	-	6.5-9.0	6.94	7.19	6.56	6.65	6.07	6.58
2	TSS	mg/L	100.0	BDL	3.0	21.0	5.0	BDL	BDL
3	BOD	mg/L	30	BDL	BDL	18.0	BDL	BDL	BDL
4	Fecal Coliform (FC)	MPN/100 ml	1000 (max)	490	189.0	340.0	610.0	480.0	450.0

**(v) 300 KLD STP outlet:**

Sl. No.	Parameter	Unit	Limit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	pH	-	6.5-9.0	6.63	6.83	7.46	6.88	7.35	6.84
2	TSS	mg/L	100.0	7.0	8.0	9.0	4.0	BDL	BDL
3	BOD	mg/L	30	4.2	5.2	15.0	5.0	BDL	BDL
4	Fecal Coliform (FC)	MPN/100 ml	1000 (max)	240	420	360.0	480.0	590.0	480.0



**(vi) 100 KLD STP outlet:**

Sl. No.	Parameter	Unit	Limit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	pH	-	6.5-9.0	6.60	7.26	7.41	7.80	7.78	7.12
2	TSS	mg/L	100.0	3.0	6.0	12.0	BDL	BDL	BDL
3	BOD	mg/L	30	4.4	6.6	12.0	4.2	BDL	BDL
4	Fecal Coliform (FC)	MPN / 100 ml	1000 (max)	340	350.0	290.0	320.0	220.0	180.0

**(vii) 400 KLD STP outlet:**

Sl. No.	Parameter	Unit	Limit	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	pH	-	6.5-9.0	7.13	6.93	7.35	7.35	6.84	7.16
2	TSS	mg/L	100.0	BDL	8.0	22.0	22.0	7.0	BDL
3	BOD	mg/L	30	BDL	6.4	20.0	20.0	6.8	4.2
4	Fecal Coliform (FC)	MPN / 100 ml	1000 (max)	120	210.0	210.0	210.0	350.0	290.0





**ENVIRONMENTAL QUALITY PARAMETERS OF CPP  
STACK EMISSION  
(April 2022 - September 2022)**

**Unit # I**

Process attached to the unit : Boiler # 1 &2

Sl. No.	Month / Year	Unit	PM	SO <sub>2</sub>	NO <sub>x</sub>	Hg
01.	April	mg / NM <sup>3</sup>	The unit was under shut down (SD)			
02.	May	mg / NM <sup>3</sup>	The unit was under shut down (SD)			
03.	June	mg / NM <sup>3</sup>	The unit was under shut down (SD)			
04.	July	mg / NM <sup>3</sup>	The unit was under shut down (SD)			
05.	August	mg / NM <sup>3</sup>	The unit was under shut down (SD)			
06.	September	mg / NM <sup>3</sup>	The unit was under shut down (SD)			
<b>Average</b>		mg / NM <sup>3</sup>	The unit was under shut down (SD)			
<b>Standard</b>		mg / NM <sup>3</sup>	100	600	600	

**Unit # II**

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

Sl. No.	Month / Year	Unit	PM	SO <sub>2</sub>	NO <sub>x</sub>	Hg
01.	April	mg / NM <sup>3</sup>	43.58	400.65	199.07	0.007
02.	May	mg / NM <sup>3</sup>	41.98	393.85	203.10	0.007
03.	June	mg / NM <sup>3</sup>	45.22	407.63	207.80	0.007
04.	July	mg / NM <sup>3</sup>	42.13	408.32	206.87	0.007
05.	August	mg / NM <sup>3</sup>	44.85	405.87	207.95	0.007
06.	September	mg / NM <sup>3</sup>	45.27	414.78	211.57	0.008
<b>Average</b>		mg / NM <sup>3</sup>	<b>43.84</b>	<b>405.18</b>	<b>206.06</b>	<b>0.072</b>
<b>Standard</b>		mg / NM <sup>3</sup>	100	600	450	0.03



**STACK EMISSION**  
**(April 2022 - September 2022)**

**Unit # III**

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

Sl. No.	Month / Year	Unit	PM	SO <sub>2</sub>	NO <sub>x</sub>	Hg
01.	April	mg / NM <sup>3</sup>	44.40	412.88	205.70	0.0073
02.	May	mg / NM <sup>3</sup>	40.13	410.98	196.58	0.0073
03.	June	mg / NM <sup>3</sup>	45.03	415.02	206.63	0.0073
04.	July	mg / NM <sup>3</sup>	39.30	411.25	225.90	0.0070
05.	August	mg / NM <sup>3</sup>	45.55	399.33	205.17	0.0072
06.	September	mg / NM <sup>3</sup>	43.85	410.93	207.17	0.0073
<b>Average</b>		mg / NM <sup>3</sup>	<b>43.04</b>	<b>410.07</b>	<b>207.86</b>	<b>0.0072</b>
<b>Standard</b>		mg / NM <sup>3</sup>	100	600	450	0.03

**Unit # IV**

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

Sl. No.	Month / Year	Unit	PM	SO <sub>2</sub>	NO <sub>x</sub>	Hg
01.	April	mg / NM <sup>3</sup>	42.95	401.98	214.75	0.0072
02.	May	mg / NM <sup>3</sup>	40.40	400.85	213.68	0.0070
03.	June	mg / NM <sup>3</sup>	42.48	410.48	221.70	0.0070
04.	July	mg / NM <sup>3</sup>	41.38	419.37	219.82	0.0071
05.	August	mg / NM <sup>3</sup>	45.07	414.93	218.40	0.0072
06.	September	mg / NM <sup>3</sup>	43.60	419.85	214.45	0.0072
<b>Average</b>		mg / NM <sup>3</sup>	<b>42.65</b>	<b>411.24</b>	<b>217.13</b>	<b>0.0071</b>
<b>Standard</b>		mg / NM <sup>3</sup>	100	600	450	0.03



**STACK EMISSION**  
**(April 2022 - September 2022)**

**Unit # V**

Process attached to the unit : Boiler # 12 &13

Sl. No.	Month / Year	Unit	PM	SO <sub>2</sub>	NO <sub>x</sub>	Hg
01.	April	mg / NM <sup>3</sup>	41.88	412.28	210.90	0.0071
02.	May	mg / NM <sup>3</sup>	40.75	408.38	209.50	0.0075
03.	June	mg / NM <sup>3</sup>	43.68	413.03	209.20	0.0077
04.	July	mg / NM <sup>3</sup>	42.23	397.53	206.00	0.0077
05.	August	mg / NM <sup>3</sup>	41.00	406.20	210.03	0.0074
06.	September	mg / NM <sup>3</sup>	46.60	412.75	221.90	0.0073
<b>Average</b>		mg / NM <sup>3</sup>	<b>42.69</b>	<b>408.36</b>	<b>211.26</b>	<b>0.0075</b>
<b>Standard</b>		mg / NM <sup>3</sup>	50	600	450	0.03



**TREATED EFFLUENT WATER ANALYSIS REPORT**  
(April 2022 - September 2022)

**INDUSTRIAL EFFLUENT (CPP):**

Sl. No	PARAMETERS	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1	Color & Odor	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless	Colorless & Odorless
2	pH at 25°C	7.78	7.47	7.34	7.41	7.36	7.41
3	Turbidity	3.5	5.2	4.3	3.8	5.4	5.0
4	Total Suspended Solids (as TSS)	28.0	22.0	26.0	21.0	48	45.0
5	Total Dissolved Solids (as TDS)	486.0	537.0	568.0	501.0	642	636
6	Oil & Grease (as O & G)	2.8	3.6	4.0	3.7	2.4	2.2
7	Total Residual Chloride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
8	Ammonical Nitrogen (as NH <sub>3</sub> -N)	2.2	2.8	1.8	1.6	1.2	1.2
9	Total Kjeldahl Nitrogen (as N)	3.7	4.5	3.9	3.6	2.8	2.6
10	Free Ammonia (as NH <sub>3</sub> )	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
11	Biochemical Oxygen Demand as BOD (3days at 27 <sup>o</sup> C)	7.3	8.6	7.7	7.4	5.6	6.0
12	Chemical Oxygen Demand (as COD)	30.0	42.0	36.0	38.0	38.0	40.0
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 <sup>+6</sup> )	<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	1.15	1.21	1.18	0.8	0.7
25	Dissolved phosphate (as P)	0.86	1.34	1.26	1.28	1.08	1.06
26	Sulphide (as S)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
27	Phenolic Compound (as C <sub>6</sub> H <sub>5</sub> OH)	<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)	0.55	0.64	0.56	0.58	0.46	0.44
30	Vanadium (as V)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
31	Nitrate Nitrogen (as NO <sub>3</sub> -N)	3.6	2.7	2.3	1.9	1.7	2.4
32	Bio- assay Test	Survival of all fishes after 96 hrs in 100% effluent	Survival of all fishes after 96 hrs in 100% effluent	Survival of all fishes after 96 hrs in 100% effluent	Survival of all fishes after 96 hrs in 100% effluent	Survival of all fishes after 96 hrs in 100% effluent	Survival of all fishes after 96 hrs in 100% effluent



**AMBIENT AIR MONITORING, (CPP)**  
**(April 2022 - September 2022)**

**PARTICULATE MATTER (PM<sub>10</sub>):**

**Limit : 100.00 µg / m<sup>3</sup>**

Location	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
FHP Control Room Top	89.80	85.30	81.70	78.00	75.60	70.30
120° NNE (Near Hindalco Admn. Building)	63.50	59.50	58.10	58.30	51.20	59.40
240° SSE (Rajapada village)	62.70	64.70	62.80	60.80	55.20	60.20
360° W (Hindalco Club)	55.60	57.20	54.70	52.80	49.50	52.30
Jyoti Vihar, Burla	60.60	61.60	58.50	57.20	50.60	51.10
Ash Mound Road	90.40	86.60	80.30	82.40	68.70	69.50
Ash Mound area	75.80	72.40	79.60	78.30	69.40	71.60
Ash Silo	91.50	87.30	91.40	89.30	81.20	78.40

**SULPHUR DI-OXIDE (SO<sub>2</sub>) :**

**Limit : 80.00 µg / m<sup>3</sup>**

Location	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
FHP Control Room Top	29.30	30.40	28.70	27.30	25.60	21.50
120° NNE (Near Hindalco Admn. Building)	12.30	14.10	12.80	10.70	10.40	12.20
240° SSE (Rajapada village)	14.70	15.20	13.70	12.80	10.80	11.90
360° W (Hindalco Club)	10.80	12.70	12.40	12.10	11.30	12.20
Jyoti Vihar, Burla	12.30	14.40	15.20	16.80	12.60	15.50
Ash Mound Road	25.40	23.70	25.10	26.80	20.40	21.60
Ash Mound area	22.20	21.60	23.40	22.90	19.70	20.20
Ash Silo	51.50	28.20	27.30	26.90	22.50	21.90



**NITROGEN OXIDE (NO<sub>x</sub>)** : **Limit : 80.00 µg / m<sup>3</sup>**

Location	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
FHP Control Room Top	23.70	25.10	23.20	22.90	20.80	22.30
120° NNE (Near Hindalco Admn. Building)	23.50	23.60	22.70	21.80	20.20	21.60
240° SSE (Rajapada village)	22.60	24.40	25.70	24.80	19.50	20.80
360° W (Hindalco Club)	19.50	21.30	23.60	22.80	19.20	22.10
Jyoti Vihar, Burla	27.60	28.30	26.80	25.60	24.20	25.20
Ash Mound Road	31.20	34.10	33.60	32.70	25.60	22.50
Ash Mound area	28.70	29.60	32.40	30.70	23.10	21.90
Ash Silo	32.30	33.40	34.20	33.80	30.40	26.70

**PARTICULATE MATTER (PM<sub>2.5</sub>)** : **Limit : 60.00 µg / m<sup>3</sup>**

Location	Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
FHP Control Room Top	48.80	46.50	45.00	43.20	39.50	40.80
120° NNE (Near Hindalco Admn. Building)	34.70	32.50	31.20	30.80	26.20	29.20
240° SSE (Rajapada village)	31.70	35.20	33.80	34.10	29.40	30.60
360° W (Hindalco Club)	29.50	30.70	30.20	29.30	23.60	22.90
Jyoti Vihar, Burla	33.60	32.20	31.50	31.80	25.10	27.60
Ash Mound Road	50.70	46.80	44.60	45.60	32.80	36.70
Ash Mound area	42.30	39.20	41.80	42.40	33.70	35.80
Ash Silo	51.50	48.40	50.70	50.10	39.70	41.30



**STATUS OF UTILISATION OF FLY ASH AND BOTTOM ASH**  
**(April 2022 - September 2022)**

<b>Sl. No</b>	<b>Description</b>	<b>Quantity (MT)</b>
1	Quantity of fly ash generated (MT)	484857.75
2	Quantity of bottom ash generated (MT)	53873.08
	<b>Total ash generated (MT)</b>	<b>538730.83</b>
3	Supply to Brick Manufacturing Units (MT)	293437.32
4	Supply to Cement Plants (MT)	134660
5	Land Filling (MT)	44206.42
6	Utilization in Embankment / Dyke Raising (MT)	17344.47
7	Utilization in other purposes (MT) (road making, etc.)	6183.78
	<b>Total Ash Utilized (MT)</b>	<b>491598.52</b>
8	% of total ash utilization	<b>91.25</b>

**Note: 11795.60 MT of additional ash has been evacuated from mound.**



### Cycle of Concentration (CoC)

<b>Unit</b>	<b>Apr'22</b>	<b>May'22</b>	<b>Jun'22</b>	<b>Jul'22</b>	<b>Aug'22</b>	<b>Sep'22</b>
Unit # I	SD	SD	SD	SD	SD	SD
Unit # II	6.60	7.31	8.16	5.40	5.81	5.97
Unit # III	6.73	6.92	7.98	5.38	5.02	5.75
Unit # IV	6.55	7.90	6.95	5.52	5.90	5.33
Unit # V	6.81	7.21	7.91	5.06	5.91	5.48
<b>Average</b>	<b>6.67</b>	<b>7.34</b>	<b>7.75</b>	<b>5.34</b>	<b>5.66</b>	<b>5.63</b>





**ENVIRONMENTAL EXPENDITURE**  
**(April 2022 - September 2022)**

01.	Ash Disposal	:	Rs.	1739.80	Lakh
02.	Operating & Maintenance cost of ESP, Ash Handling Plant including Ash Silo & CHP DES	:	Rs.	109.46	Lakh
03.	Envt. Monitoring / Evt. Charges including Environment Management System, etc.	:	Rs.	28.44	Lakh
04.	Plantation Activities	:	Rs.	15.69	Lakh
05.	Aesthetics	:	Rs.	95.87	Lakh
06.	Community Development (Hirakud complex)	:	Rs.	63.34	Lakh
	<b>TOTAL</b>	:	<b>Rs.</b>	<b>2052.6</b>	<b>Lakh</b>



**AMBIENT NOISE QUALITY DATA (CPP)**  
(April 2022 - September 2022)

Sl. No.	Location	Category	Standard* Day / Night	Distance / Direction w.r.t Plant	Noise Level (Day/Night) in dB(A)					
					Apr'22	May'22	Jun'22	Jul'22	Aug'22	Sep'22
1.	Riverside Colony	Residential	55/45	0.8 km / SW	46.21/49.0	48.6/48.9	47.45/49.6	51.1/43.8	49.0/41.2	50.0/42.3
2.	Tarasinghpada	Residential	55/45	0.2 km / S	47.15/49.2	50.7/48.1	50.20/43.8	51.0/43.3	48.4/45.3	48.9/44.6
3.	Christianpada	Residential	55/45	0.1 km / S	49.2/50.5	51/51.7	50.8/41.7	51.2/43.0	48.9/46.3	41.1/49.
4.	Power Plant Security Gate	Industrial	75/70	Plant Site	59/60.2	62.45/63.6	65.8/58.4	65.7/45.2	60.8/55.1	60.3/53.6
5.	Power Colony	Residential	55/45	0.4 km / NW	44.6/53.0	48.75/49.1	50.2/41.8	51.1/48.8	49.0/40.4	50.6/40.7

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

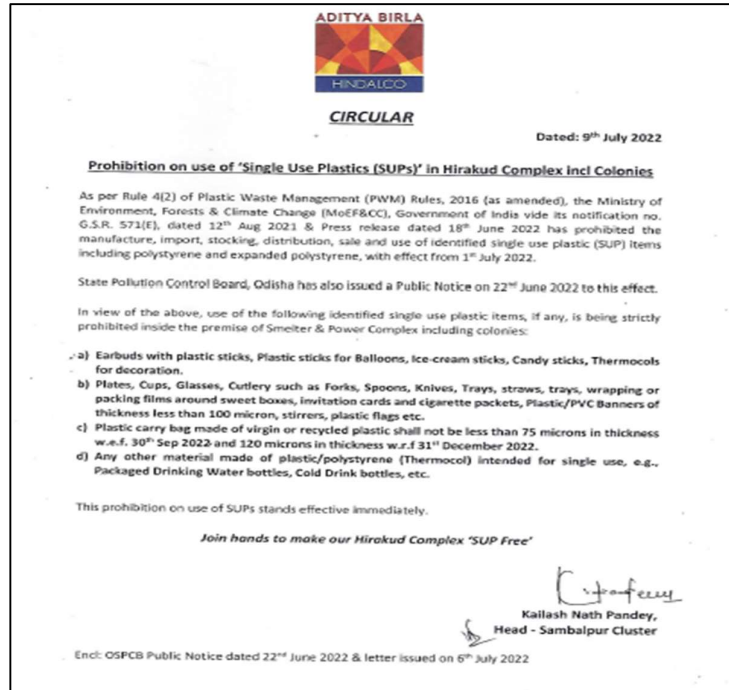


**Annexure – III**

CSR ACTIVITIES WITH EXPENSES DETAILS (APRIL TO SEPT 2022)		
Area	Beneficiaries Covered	Expenses
	(Nos)	Rs. (in lacs)
<b>Education</b>		
Specialised Coaching	40	0.16
Exposure visits /awareness	100	0.04
Skills based Individual training program	88	17.71
Sub Total-Education	228	17.91
<b>Health</b>		
Immunisation	1595	0.00
Health Check-up camps	372	1.13
Ambulance Mobile Dispensary Program	4481	0.66
Health & Hygiene awareness programmes	278	0.21
School health/Eye/Dental camps	172	0.12
Specialised Health Camps	982	5.64
Homeopathic/Ayurvedic Camps	412	0.14
Mother and Child Health care (Ante Natal Care, Pre-Natal Care and Neonatal care)	146	0.31
Adolescent Health care	272	0.04
Support to family planning /camps	30	0.10
Ambulance services (Covid Care) provided to district administration for the to cater the need of Sambalpur District public	6000	55.63
Blood donation camps	270	0.25
Village Community Sanitation (toilets/drainage)	12200	11.81
Others (Jalchhatra)	10000	2.47
Sub-Total: Health	37210	78.51
<b>Sustainable Livelihood</b>		
Agriculture & Horticulture training programme/ Farmers group	24	0.02
Support for horticulture plots	200	0.00
Support for improved agriculture equipment and inputs	20	1.20
Capacity Building Program-Tailoring, Beauty Parlour for SHG, Women Empowerment	120	0.65
Rural Enterprise development & Income Generation Programmes	600	6.50
Sub Total-Sustainable Livelihood	964	8.37
<b>Infrastructure</b>		
Repairing & maintenance of Community Assets	3203	4.04
Subtotal -Infrastructure	3203	4.04
<b>Social Development Projects</b>		
Support to old age/ Widow/ physically challenged person / poor	50	1.00
Community awareness program	200	0.07
Support to rural cultural programme, Festivals & Mela's	3100	3.99
Support to Rural Sports program	2800	13.46
Sub Total- Social development Projects	6150	18.52
<b>Grand Total</b>	<b>47755</b>	<b>127.35</b>



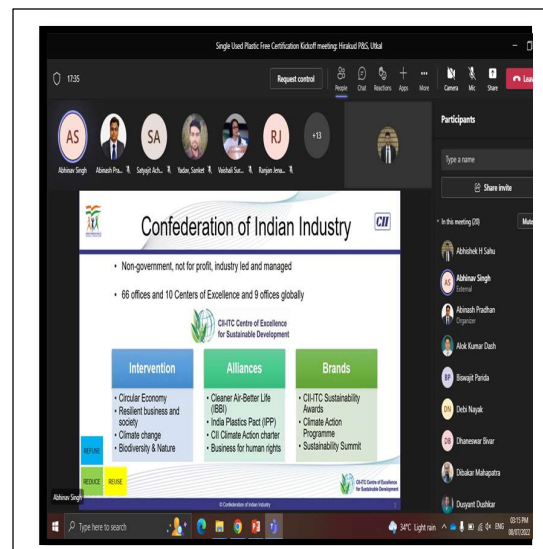
## Initiatives on Ban on use of Single Use Plastics (SUPs)



Circular for Ban on use of SUPs



Awareness among employees



Meeting with CII for "SUP free" certification



Use of Steel water bottles in GH, Conference Halls, etc.



Use of wooden & steel spoons in GH



Use of wooden & steel spoons in GH



Use of aluminium foil pouch in coal sampling