

**Hindalco Industries Limited**  
Unit: Birla Copper, Dahej

**Status of compliance to conditions of Environmental Clearance No. J-11011/220/2004-I A II (I) dated 18<sup>th</sup> March, 2005**  
(Six monthly compliance report from **October-23 to March-2024**)

Sub.: Phase-III Copper Smelter expansion project by M/s Hindalco Industries Limited from 2, 50,000 TPA to 5, 00,000 TPA and From 67.35 to 145.60 MW Captive Power Plants at Village Lakhigam and Dahej, Tehsil Vagra, District Bharuch in Gujarat.

**[A] SPECIFIC CONDITIONS:**

Sr. No.	Details of condition	Compliance status
1	All the conditions stipulated by the Ministry while according to environmental clearance to the existing project vide its letter No. J-11011/86/2002-IA. II (I) dated 10th February 2004 shall be strictly implemented.	There are seven specific condition and eleven general conditions stipulated in environmental clearance issued by the Ministry Vide Letter No. 11011/86/2002-IA II (I) dated 10-02-2004. The total conditions are complied with. compliance report is attached in Annexure- (C)
2	The gaseous emissions from various process units should conform to the standards prescribed by the concerned authorities from time to time. The State Pollution Control Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time the emissions level should go beyond the prescribed standards. 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.	The gaseous emission from various process units is within the standards prescribed by GPCB. The efficient and adequate capacity of pollution control equipment and sufficient stack height is provided to ensure the emission level well within the prescribed standards. The process operation is interlocked. It is ensured that in case of failure of pollution control system, the respective plant is stopped till the control system is rectified and restarted. The condition is complied with.

Stack analysis report Oct-23 to March-2024		SO2		NOx		PM	
Sr No	Stack list at Birla Copper	GPCB Norms	Observed	GPCB Norms	Observed	GPCB Norms	Observed
			Value		Value		value
1	Dore furnace of PMR plant	100 ppm	71.46	50 ppm	29.13	150 mg/Nm3	77.06
2	Sulphuric acid Preheater I	100 ppm	75.91	50 ppm	29.2	150 mg/Nm3	90.50
3	CPP-I (CFBC Boiler) 35 MW	600 mg/Nm3	372.26	600 mg/Nm3	197.7	100 mg/Nm3	82.47
4	Shaft furnace of CC Rod plant I	100 ppm	ND	50 ppm	ND	150 mg/Nm3	86.13
5	Shaft furnace of CC Rod plant-II	-	Plants/d	--	NA	-	Plants/d
6	Sulphuric acid Pre-heater-III	100 ppm	62.97	50 ppm	27.62	150 mg/Nm3	78.49
7	CPP-II (CFBC Boiler) 15.35 MW	600 mg/Nm3	Plants/d	600 mg/Nm3	Plants/d	150 mg/Nm3	Plants/d
8	CPP-III (CFBC Boiler) 60 MW	600 mg/Nm3	388.26	300 mg/Nm3	183.27	50 mg/Nm3	31.06
9	Shaft furnace of CC Rod plant-III	100 ppm	ND	50 ppm	ND	150 mg/Nm3	80.68
10	Anode Casting of Smelter-I	40 mg/Nm3	ND	25 mg/Nm3	ND	150 mg/Nm3	91.54
11	Main stack Sec. Gas Scrubber of Smelter-I	40 mg/Nm3	30.48	NA	NA	NA	NA
12	Main stack Slag Cleaning Furnace of Smelter-I	40 mg/Nm3	30.48	NA	NA	150 mg/Nm3	84.74
13	Main Stack Sulphuric Acid plant - I	2.0 kg/T of 100 % H2SO4	1.07 Kg/T	Acid Mist 25 mg/Nm3	ND	NA	NA
14	Cathode Stripping m/c of Ref-I	40 mg/Nm3	ND	NA	NA	NA	NA
15	Anode scrap Washing m/c of Ref-I	40 mg/Nm3	ND	NA	NA	NA	NA
16	Liberator stack of Refinery-I	40 mg/Nm3	ND	Acid Mist 25 mg/Nm3	ND	NA	NA
17	Slag granulation of Smelter-I	40 mg/Nm3	ND	NA	NA	150	79.38

						mg/Nm3	
18	Steam Dryer of Copper Conc. of Smelter-I	40 mg/Nm3	ND	NA	NA	150 mg/Nm3	83.74
19	Centralized Scrubbing System Smelter-III	40 mg/Nm3	29.66	NA	NA	150 mg/Nm3	83.21
20	Sulphuric Acid plant – III (TGS Scrubber)	1.0 kg/T of 100 % H2SO4	0.21 Kg/T	Acid Mist 25 mg/Nm3	ND	NA	NA
21	Cathode Stripping m/c - Ref-III	40 mg/Nm3	ND	NA	NA	NA	NA
22	Liberator stack of Refinery-III	40 mg/Nm3	Nil	Acid Mist 25 mg/Nm3	NA	NA	NA
23	PMR Phase -III	40 mg/Nm3	28.69	25 mg/Nm3	17.71	150 mg/Nm3	82.13
DAP / PAP Fertilizer		F Norms	F	NH3 Norms	NH3	PM Norms	PM
DAP		6.0 mg/Nm3	Plant s/d	175 mg/Nm3	Plant s/d	150 mg/Nm3	Plant s/d
Reactor (Phosphoric Acid plant)		6.0 mg/Nm3	Plant s/d	NA	NA	NA	NA

3

The effluent generation shall not exceed 2655 m3/d (2525 m3/d of industrial effluent and 130 m3/d of domestic effluent). The Company shall undertake measures to reduce the water consumption by recycling/ reuse measures. The company shall achieve zero discharge as per the action plan submitted to the Ministry by use of treated wastewater after conforming to the prescribed standards for green belt development (1330m3/d), lime slurry preparation (475m3/d), make up in slag granulation (480m3/d) and gas cleaning section (370m3/d). Domestic effluent shall be treated in the STP and used for green belt development.

The average industrial effluent generation is 1626 m3/d whereas domestic effluent is 107 m3/d of plant. Use of treated wastewater after conforming to the prescribed standards for green belt development (1330 m3/d), lime slurry preparation (475 m3/d), make up in slag granulation (480m3/d) and gas cleaning section (370 m3/d).

Month	Effluent generation Per day (KL)	For green belt development (KL)	Lime slurry preparation (KL)	Make up in slag granulation (KL)	Gas cleaning section (KL)
Oct-23	926	464	166	167	129
Nov-23	1490	746	267	269	208
Dec-23	1747	875	312	316	243
Jan-24	1616	809	289	292	225
Feb-24	1487	745	266	269	207
Mar-24	1703	853	305	308	237
<b>Average</b>	<b>1495</b>	<b>749</b>	<b>267</b>	<b>270</b>	<b>208</b>

Domestic effluent is treated in STP and used for green belt development. The

		condition is complied with												
4	The company shall install cyclone and bag-filter to control the particulate emission in concentrates handling area. The recovered dust shall be recycled	The adequate capacity bag filters (2 no's) are installed in concentrate handling area to control the particulate emission. The recovered dust is recycled in the system. The condition is complied with												
5	The company shall recover the energy from the smelter and use it for waste heat boiler. Secondary gases from the smelter shall be passed through centralized scrubbing system. Off gases from the re-boiler shall be cleaned by installation of high efficiency ESP.	The company has installed waste heat recovery boiler to generate steam of 35 m3/hr. which can produce 7 MW power from the smelter. The secondary gas from the smelter is passed through centralized scrubbing system where lime and alkali dosing is provided to neutralize the gas. Off-gases from the re-boiler is passed through high efficiency ESP to get cleaned the off-gas. The condition is complied with.												
6	As per the action plan submitted to the Ministry, the Company shall achieve SO2 emission of 1kg/tonne of sulfuric acid produced. The company shall install scrubber to scrub emissions during start and shut down of H2SO4 plant. The acid mist emission should conform to the prescribed standard of 50mg/Nm3	The SO2 emission and acid mist from stack is monitored regularly in house as well as by third party. The concentration observed is well within the prescribed standards. The average concentration observed during the last six months is as under: <table border="1"> <thead> <tr> <th>Sr. No</th> <th>Stack Details</th> <th colspan="2">Observed Average Value (Oct-23 to March-2024) Average value</th> </tr> <tr> <td></td> <td>Norm: SO2 – 1 Kg/T of 100% H2SO4 &amp; Acid Mist- 50 mg/Nm3</td> <td>SO<sub>2</sub> (kg/T)</td> <td>Acid mist (mg/Nm3)</td> </tr> </thead> <tbody> <tr> <td>1</td> <td>Sulphuric Acid plant – III (TGS)</td> <td>0.210</td> <td>Nil</td> </tr> </tbody> </table> The company has already installed scrubber to scrub the emission during start and shut and shutdown of sulfuric acid plant where lime and alkali dosing is given. The condition is complied with.	Sr. No	Stack Details	Observed Average Value (Oct-23 to March-2024) Average value			Norm: SO2 – 1 Kg/T of 100% H2SO4 & Acid Mist- 50 mg/Nm3	SO <sub>2</sub> (kg/T)	Acid mist (mg/Nm3)	1	Sulphuric Acid plant – III (TGS)	0.210	Nil
Sr. No	Stack Details	Observed Average Value (Oct-23 to March-2024) Average value												
	Norm: SO2 – 1 Kg/T of 100% H2SO4 & Acid Mist- 50 mg/Nm3	SO <sub>2</sub> (kg/T)	Acid mist (mg/Nm3)											
1	Sulphuric Acid plant – III (TGS)	0.210	Nil											
7	To control the total fluoride emission within the prescribed standards of 25mg/Nm3 in the phosphoric acid plant, the company shall provide multistage scrubbers in the phosphoric plant.	The multistage scrubber is provided to mitigate the fluoride emission from phosphoric plant. The average concentration observed during the last six months is as under: <table border="1"> <thead> <tr> <th>Sr. No</th> <th>Stack Details</th> <th>Observed Average Value (Oct-23 to March-2024) HF mg/Nm3</th> </tr> </thead> <tbody> <tr> <td></td> <td>GPCB Norm</td> <td>-</td> </tr> <tr> <td>1</td> <td>Reactor (Phosphoric Acid Plant)</td> <td>Plant Shut down. for long term maintenance</td> </tr> </tbody> </table> The condition is complied with.	Sr. No	Stack Details	Observed Average Value (Oct-23 to March-2024) HF mg/Nm3		GPCB Norm	-	1	Reactor (Phosphoric Acid Plant)	Plant Shut down. for long term maintenance			
Sr. No	Stack Details	Observed Average Value (Oct-23 to March-2024) HF mg/Nm3												
	GPCB Norm	-												
1	Reactor (Phosphoric Acid Plant)	Plant Shut down. for long term maintenance												
8	The company shall provide HDPE lined facility with proper	The HDPE lined facility with proper leachate collection system is												

	Leachate collection system for phospho-gypsum storage. ETP sludge shall be disposed of in the TSDF developed as per the Central Pollution Control Board guidelines. The ground water quality around the phospho-gypsum and ETP sludge disposal area shall be monitored and data submitted to the Ministry.	provided for phospho gypsum storage yard. The ETP sludge is disposed of in secured landfill which is developed as per CPCB guidelines. The bore well (10 no's) is established all around the secured landfill to monitor ground water quality. The ground water quality monitored around the ETP sludge disposal area and phospho gypsum area from Oct-23 to March-24 is attached as Annexure-III The condition is complied with.
9	Green belt in 106.11 ha. of project area shall be provided to mitigate the effects of fugitive emissions all around the plant. The development of green belt should be in consultation with the DFO as per the CPCB guidelines.	The green belt is developed to mitigate the effect of fugitive emission all around the plant. The green belt development based on expert scientific opinion and with the consultation of DFO and as per the CPCB guidelines. The green belt developed is attached as Annexure-IV. The green belt is developed in and around the plant, Hence condition is complied with.
10	The company shall firm up the action plan for solid waste management and submitted to the Ministry	The company has already submitted the action plan for solid waste management to the Ministry on 03.01.2005. The condition is complied with.
11	The company shall take measures for harvesting the rainwater to recharge the ground water.	The company has taken several measures for rainwater harvesting and the harvested water is utilized in green belt development. The recharge of rainwater in the ground water is not possible because the water table is high in this area. The condition is complied with.

**[B] GENERAL CONDITIONS:**

Sr No	Description	Status
1	The project authorities must strictly adhere to the stipulations made by the Gujarat State Pollution Control Board.	The company is fully committed to adhere to the stipulated conditions made by the GPCB. The condition is complied with
2	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	The company has obtained prior environment clearance before expansion or modification in the plant. No deviations or alterations in the project proposal is carried out.

3	<p>The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October 1994 and January 2000. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained. Rules and regulations under Manufacture, storage and import of hazardous chemicals rules, 1989 as amended in October 1994 and 2000 are being complied by us. Necessary licenses from Controller of Explosives, Boiler inspectorate and Factories Inspectorate have been obtained as per requirement.</p>	<p>The company has already obtained the permission from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire safety Inspectorate for Manufacture, storage and import of hazardous chemicals rules, 1989 as amended in October 1994 and January 2000. The permission obtained from Factories Inspectorate is attached as Annexure-V</p> <p>The Rules and regulations under Manufacture, storage and import of hazardous chemicals rules, 1989 is complied with. The necessary permission is attached as Annexure-V</p> <p>The company has already obtained necessary licenses from Controller of Explosives, the necessary permission is attached as Annexure-VI</p> <p>Boiler inspectorate permission is attached as Annexure-VII</p> <p>The condition is complied with</p>
4	<p>The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the State Pollution Control Board must be obtained for collections/ treatment/ storage/disposal of hazardous wastes.</p>	<p>The company has already obtained authorization under the Hazardous Wastes (Management and Handling) Rules, 2003. CCA No. AWH-108216 dated 30-05-2020 which is valid up to 02-03-2026. The condition is complied with.</p>
5	<p>The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).</p>	<p>The overall noise levels in and around the plant area is 61.70 dB(A) in day time and 58.30 dB(A) in night time which is well within the standards 75 dB(A) in day time and 70 dB(A) in night time. The ambient noise level measured are as under:</p> <p>The condition is complied with</p>

Monitored ambient noise levels(dB) from Oct-23 to March-2024 (Average)			
		Day time	Nighttime
Sr No.	Location	Noise Level in dB(A)	Noise Level in dB(A)
1	Near Smelter-I	65.2	62.5
2	Near SAP-I	63.8	62.5
3	Near ETP Plant	62.6	61.0
4	Near Captive Power Plant-1	66.8	64.2
5	Near DAP	63.4	61.8
6	Near Smelter-III	65.5	63.3



		with all necessary instruments/ equipment's. The following equipment and consumable are available in the laboratory:																				
		<table border="1"> <tr> <td>CAAQMS (04)</td> <td>OCEMS (35)</td> </tr> <tr> <td>Atomic Absorption Spectrophotometer</td> <td>Weather station</td> </tr> <tr> <td>PM2.5, PM10 Combo</td> <td>Stack Monitoring Kit (1)</td> </tr> <tr> <td>Noise Level monitors (02)</td> <td>Handheld SO2, NH3, HF analyzer</td> </tr> <tr> <td>Multi gas Analyzer (SO2, NOx, CO2, HC, O2, and CO)</td> <td>Ion selected Fluoride analyzers</td> </tr> <tr> <td>Spectrophotometer (visible range)</td> <td>BOD incubator</td> </tr> <tr> <td>COD reflux set up</td> <td>Single pan balance</td> </tr> <tr> <td>Relevant chemicals as per IS 5182</td> <td>Hot Air Oven</td> </tr> <tr> <td>Stopwatch</td> <td>Thermometer</td> </tr> <tr> <td>PH Meter</td> <td>Titration set</td> </tr> </table>	CAAQMS (04)	OCEMS (35)	Atomic Absorption Spectrophotometer	Weather station	PM2.5, PM10 Combo	Stack Monitoring Kit (1)	Noise Level monitors (02)	Handheld SO2, NH3, HF analyzer	Multi gas Analyzer (SO2, NOx, CO2, HC, O2, and CO)	Ion selected Fluoride analyzers	Spectrophotometer (visible range)	BOD incubator	COD reflux set up	Single pan balance	Relevant chemicals as per IS 5182	Hot Air Oven	Stopwatch	Thermometer	PH Meter	Titration set
CAAQMS (04)	OCEMS (35)																					
Atomic Absorption Spectrophotometer	Weather station																					
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Relevant chemicals as per IS 5182	Hot Air Oven																					
Stopwatch	Thermometer																					
PH Meter	Titration set																					
		The condition is complied with																				

<b>10</b>	The project authorities shall earmark an amount of Rs. 162.65 cores (as mentioned in question no. xix of questionnaire) to implement the conditions stipulated by the Ministry of Environment & Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purpose. The funds already were used for environmental protection measures during the plant expansion and not diverted for any other purposes.	The company has incurred an amount of Rs. 301.37 crores to implement the conditions stipulated by the Ministry of Environment & Forests as well as the State Government. The details of amount incurred is as under: The funds earmarked were used for environmental protection measures and not diverted for any other purposes. The condition is complied with
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Hindalco Industries Ltd.		
Unit: Birla Copper, Dahej		
Capital Cost for Environmental Control Measures		
Sr no	Item	Total in lacs
1	Dryer bag filer & dedusting system	669
2	Alkali Scrubber Smelter-1	8500
3	Water Cool hood Smelter-1 Converter 1,2 &3	1770
4	Ventilation hood from S & C furnace & bag house	150



	5	ESP's of smelter-III	518	
	6	ESP's of CPP	400	
	7	Alkali Scrubber of Smelter –III	694	
	8	Effluent Treatment –II	1000	
	9	Sewage Treatment Plant-II	100	
	10	Sulfuric Acid Plant –III	8595	
	11	Tail Gas Scrubber SAP-III	3466.69	
	12	Tail Gas Scrubber SAP-I	5093.56	
	13	SLF for ETP waste	700	
	14	PG, slag & Flyash yard- for Phase-III	2000	
	15	Bag filters for CHP CPP-III and ash management	800.38	
	16	Liberator scrubber	141	
	17	PMR plant Bag filter	50	
	18	Fluorine scrubbing system in PAP-III	203.08	
	19	Scrubbing system for DAP-III plant	300	
	20	Green belt development	600	
	21	Zero Liquid Discharge	6754	
	22	Wind fencing for coal yard	1395	
		Total in Lacs	43899.71	
		Total in crore	438.9971	
<b>11</b>	The implementation of the project vis-à-vis environmental action plans will be monitored by Ministry's regional office at Bhopal / State Pollution Control Board / Central Pollution Control Board. A six-monthly compliance status report should be submitted to monitoring agencies.		The implementation of the project is monitored by Ministry's regional office at Bhopal / State Pollution Control Board / Central Pollution Control Board. The six-monthly compliance status reports are submitted regularly. The copy of acknowledgement is attached as under: The condition is complied with	
<b>12</b>	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . This should 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 should be forwarded to the Regional Officer.		The company has published the information regarding obtaining the environment clearance for the aforesaid project in two daily news papers i.e. Gujarat Samachar dtd.2.4.2005 and The Times of India dtd.2.4.2005.  The condition is complied with.	

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Your application has been **Submitted** with following details

<b>Proposal No</b>	J-11011/220/2004-I A II (I)
<b>Compliance ID</b>	28383810
<b>Compliance Number(For Tracking)</b>	EC/M/COMPLIANCE/28383810/2023
<b>Reporting Year</b>	2023
<b>Reporting Period</b>	01 Dec(01 Apr - 30 Sep)
<b>Submission Date</b>	01-12-2023
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<b>IRO Office Address</b>	Budgam

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