

Hindalco Industries Ltd.
Unit: Birla Copper, Dahej

Status of compliance to conditions of Environmental Clearance No. J-11011/7/94 – I A II dated 14-03-1995

Six monthly compliance report from October-23 to March-2024)

Subject: Establishment of copper smelting plant having capacity 1.0 lac MTPA, based on imported copper concentrate to be received at proposed captive jetty (270mts x 270mts) at the distance of 2 km from shoreline.

It is also considered that the Sulphuric acid (296000 TPA) Phosphoric acid (50000 TPA), Silver (26TPA), Gold (3.0 Kg/Annum)

Sr. No	Details of condition	Compliance status
i	The project authority must strictly adhere to the stipulations laid down by the State Pollution Control Board and the State Govt.	The stipulation laid down by the State Pollution Control Board is complied with. As such there is no condition stipulated by the State Government. The Consolidated consent & authorization obtained from GPCB for whole Smelter complex vide Consent Order No.: AWH-108216 issued dated 30-05-2020 which is valid up to 02-03-2026. The compliance of conditions stipulated by State Pollution Control board is attached as Annexure- (E)
ii	Any expansion of the plant either with the existing product mix or new products can be taken up only with the prior approval of this Ministry.	The company has obtained prior environment clearance from the Ministry before expansion of the plant with the existing product mix or new products. The condition is complied with
iii	Comprehensive EIA report for the proposed copper smelter and captive jetty facilities should be submitted within 15 months.	The company submitted a comprehensive EIA report on copper smelter and captive jetty facilities on 25.8.1996. The condition is complied with
iv	The gaseous emissions from various process units should conform to the standards prescribed by the concerned authorities from time to time. At no time the emission level should go beyond the stipulated standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be put off	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

operation immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.

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 is given in below table:

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	-	Plant s/d	--	NA	-	Plant s/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	Plant s/d	600 mg/Nm3	Plant s/d	150 mg/Nm3	Plant s/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/Nm ³	ND	NA	NA	NA	NA
15	Anode scrap Washing m/c of Ref-I	40 mg/Nm ³	ND	NA	NA	NA	NA
16	Liberator stack of Refinery-I	40 mg/Nm ³	ND	Acid Mist 25 mg/Nm ³	ND	NA	NA
17	Slag granulation of Smelter-I	40 mg/Nm ³	ND	NA	NA	150 mg/Nm ³	79.38
18	Steam Dryer of Copper Conc. of Smelter-I	40 mg/Nm ³	ND	NA	NA	150 mg/Nm ³	83.74
19	Centralized Scrubbing System Smelter-III	40 mg/Nm ³	29.66	NA	NA	150 mg/Nm ³	83.21
20	Sulphuric Acid plant – III (TGS Scrubber)	1.0 kg/T of 100 % H ₂ SO ₄	0.21 Kg/T	Acid Mist 25 mg/Nm ³	ND	NA	NA
21	Cathode Stripping m/c - Ref-III	40 mg/Nm ³	ND	NA	NA	NA	NA
22	Liberator stack of Refinery-III	40 mg/Nm ³	Nil	Acid Mist 25 mg/Nm ³	NA	NA	NA
23	PMR Phase -III	40 mg/Nm ³	28.69	25 mg/Nm ³	17.71	150 mg/Nm ³	82.13
DAP / PAP Fertilizer		F Norms	F	NH ₃ Norms	NH ₃	PM Norms	PM
DAP		6.0 mg/Nm ³	Plant s/d	175 mg/Nm ³	Plant s/d	150 mg/Nm ³	Plant s/d
Reactor (Phosphoric Acid plant)		6.0 mg/Nm ³	Plant s/d	NA	NA	NA	NA
v	Adequate number of ambient air quality monitoring station should be set up in the down wind direction as well as where maximum ground level concentration is anticipated, especially covering the human settlements for the estimation of particulates, fluoride dust SO ₂ , etc. in consultation with the SPCB. Monitoring network should be designed taking into consideration the existing land-use pattern, location of stacks, meteorological condition and topographic features including existing ambient air quality data.	Adequate number of ambient air quality monitoring station are set up in the down wind direction as well as where maximum ground level concentration is anticipated, especially covering the human settlements for the estimation of particulates, fluoride dust SO ₂ , etc. in consultation with the State Pollution Control Board. The ambient quality data is submitted to the State pollution control board and Ministry of Environment and Forest on monthly and 6 months' basis respectively. The statistical analysis of ambient air quality is as under:					

Hindalco Industries Limited Unit: Birla Copper, Dahej
 AMBIENT AIR QUALITY AV. MEAN ($\mu\text{g}/\text{m}^3$)

Sr. No.	Monitoring Stations	Oct-23 to March-2024			
		PM 10	PM 2.5	SO ₂	NO _x
1	Township	54.54	40.52	35.20	11.38
2	Jetty	58.36	41.57	35.13	12.12
3	Near 16 ha	59.61	44.03	34.49	59.61
4	Near YMA	56.31	44.00	35.17	10.70

vi All the stacks of the plant must be provided with on-line stack emission monitoring equipment for the estimation of SO₂, fluoride, SPM etc. Stack emission and ambient air quality data must be submitted to the State Pollution Control Board once in 3 months and once in 6 months to the Ministry of Environment and Forests along with statistical analysis and interpretation.

Stacks are provided with SO₂, fluoride and SPM online emission monitoring analyzer. The stack emissions and ambient air quality monitoring data are being submitted to the State pollution control board on monthly basis and Ministry of Environment and Forest once in 6 months. The concentration of SPM, SO₂ and NO_x is being monitored at four locations and Reported to GPCB, CPCB and Ministry. Stack emission data for the month of Oct-23 to March-2024 are given below

Stack analysis report CEMS Oct-23 to March-2024		SO ₂		NO _x		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	6.08	50 ppm	0.120	150 mg/Nm ³	94.11
2	Sulphuric acid Preheater I	100 ppm	19.72	50 ppm		150 mg/Nm ³	19.6
3	CPP-I (CFBC Boiler) 35 MW	600 mg/Nm ³	114.60	600 mg/Nm ³	57.6	100 mg/Nm ³	13.95
4	Shaft furnace of CC Rod plant I	100 ppm	2.21	50 ppm	2.70	150 mg/Nm ³	67.72
5	Shaft furnace of CC Rod plant-II	-	Plant s/d	--	NA	-	Plant s/d
6	Sulphuric acid Pre-heater-III	100 ppm	14.97	50 ppm	0.00	150 mg/Nm ³	37.58
7	CPP-II (CFBC Boiler) 15.35 MW	600 mg/Nm ³	Plant s/d	600 mg/Nm ³	Plant s/d	150 mg/Nm ³	Plant s/d
8	CPP-III (CFBC Boiler) 60 MW	600 mg/Nm ³	151.88	300 mg/Nm ³	56.43	50 mg/Nm ³	7.42
9	Shaft furnace of CC Rod plant-III	100 ppm	18.25	50 ppm	8.58	150 mg/Nm ³	2.98
10	Anode Casting of Smelter-I	40 mg/Nm ³	ND	25 mg/Nm ³	ND	150 mg/Nm ³	97.60

11	Main stack Sec. Gas Scrubber of Smelter-I	40 mg/Nm3	18.52	NA	NA	NA	NA
12	Main stack Slag Cleaning Furnace of Smelter-I	40 mg/Nm3	18.52	NA	NA	150 mg/Nm3	46.66
13	Main Stack Sulphuric Acid plant - I	2.0 kg/T of 100 % H2SO4	0.026	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 mg/Nm3	15.22
18	Steam Dryer of Copper Conc. of Smelter-I	40 mg/Nm3	22.80	NA	NA	150 mg/Nm3	19.78
19	Centralized Scrubbing System Smelter-III	40 mg/Nm3	2.99	NA	NA	150 mg/Nm3	45.35
20	Sulphuric Acid plant – III (TGS Scrubber)	1.0 kg/T of 100 % H2SO4	0.060	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	4.92	25 mg/Nm3	2.31	150 mg/Nm3	73.39
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
vii	Fugitive emission of dust/mist vapors, fumes, SO2 and HC should be controlled, and work environment monitored for prevailing contaminants regularly. Fugitive dust generated during pyrite crushing screening and handling at various transfer points should be reduced to the minimum by installing adequate dust collection and extraction system and regularly monitored.	All possible measures are adopted to mitigate fugitive emissions, SO2, fumes in the work environment. The prevailing contaminants are monitored regularly. Adequate capacity of bag filters is attached to all transfer points to mitigate fugitive emission. As such there is no emission of HC from our process & operation. However, SO2 emission is being monitored periodically, and data are maintained.					
viii	Adequate scrubbing system must be provided to remove silica, fluoride, and rock phosphate dusts from flue gases.	An adequate scrubbing system is provided to remove silica, fluoride, and rock phosphate dust from flue gas. Phosphoric acid plants are under long term shut down.					
ix	There should be no change in the stack design without prior approval from the State Pollution Control Board and this Ministry.	The company has not changed the stack design. The existing stacks are as per GPCB consents only. The condition is complied with					

x	An adequate number of effluent monitoring station must be set up in consultation with the State Pollution Control Board. If the effluent quality at any time exceeds the standards prescribed, the corresponding unit of the plant which is contributing to the excessive pollution level shall be immediately stopped from operating till the quality of pollutant discharged from the respective units are brought down to the required standards	Effluent monitoring station is installed in consultation with the State Pollution Control Board. Whenever the effluent quality at any time exceeds the standards prescribed, the corresponding unit of the plant which is contributing to the excessive pollution level has been immediately stopped from operating till the quality of pollutant discharged from the respective units are brought down to the required standards.
xi	The treated effluents should conform to the prescribed standards and be discharged into the sea at a point approved by the State Pollution Control Board and NIO, Goa. Efforts should also be made to recycle the treated effluents for green belt development to the maximum possible extent	The treated effluent confirms to the prescribed standards and discharges into the sea at a point approved by the State Pollution Control Board and NIO, Goa. Efforts are made to recycle the treated effluents for green belt development to the maximum possible extent. Treated water quality for the period of Oct-23 to March-24 are as under: The observed parameters are well within prescribed limit; hence condition is complied with.

Sr. No	Parameters	Units	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	GPCB Norms	Treated Effluent analysis report Average
1	pH	--	7.71	7.64	7.66	7.60	7.53	7.56	5.5-9.0	7.62
2	Temp	o C	30.40	30.98	30.16	30.54	30.00	30.43	45	30.42
3	Colour	units	10.14	10.15	10.07	10.76	10.10	10.86	100	10.35
4	Suspended Solids	mg/L	19.02	19.87	19.49	19.77	19.86	19.64	100	19.61
5	COD	mg/L	33.81	37.00	37.81	32.75	32.55	36.06	250	35.00
6	BOD 3 day at 27o C	mg/L	8.34	8.01	8.40	8.00	7.84	8.04	100	8.10
7	Oil & Grease	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20	< 0.1
8	Phenolic compound	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5.0	< 0.1
9	Ammonical N2	mg/L	9.70	9.63	9.01	9.57	9.69	9.84	50	9.57
10	Sulphide	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5.0	< 0.2
11	Cyanides	mg/L	ND	ND	Nil	Nil	Nil	Nil	0.2	Nil
12	Fluoride	mg/L	1.85	1.93	2.05	2.12	1.98	2.16	10	2.02
13	Hexa. Chromium	mg/L	0.39	0.36	0.42	0.45	0.43	0.41	1.0	0.41
14	Total Chromium	mg/L	0.45	0.47	0.43	0.40	0.44	0.46	2.0	0.44
15	Copper	mg/L	0.21	0.26	0.21	0.24	0.24	0.22	3.0	0.23

16	Nickel	mg/L	0.09	0.08	0.10	0.09	0.10	0.09	5.0	0.09
17	Zinc	mg/L	0.26	0.25	0.25	0.22	0.28	0.30	15.0	0.26
18	Mercury	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	< 0.005
19	Lead	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1	< 0.005
20	Arsenic	mg/L	0.02	0.01	0.05	0.04	0.04	0.04	0.2	0.03
21	Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.000	< 0.01
22	Insecticides and Pesticides	mg/L	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
23	Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	< 0.01
24	Bio-Assay Test	% Survival of fish after 96 hrs. in 100 % effluent.	96.38	96.57	96.94	96.70	96.54	96.25	95.000	96.56
xii	The industry should provide separate drain for storm water, sanitary wastewater and process effluents and the entire layout plan for the above must have the approval of the State Pollution Control Board.					A separate drain is provided for storm water, whereas sanitary wastewater is sent to the STP in a closed loop for treatment, the process effluent is sent to the effluent treatment plant in a closed pipeline for further treatment. The condition is complied with				
xiii	A guard pond must be constructed near the terminal end of all the effluents before final disposal of effluents. This pond must have two compartments of which one will be kept empty while the other will be operated as a routing guard pond. When the concentration of effluents is high in the final effluents, corrective measures should be taken at source and the effluent shall be discharged at a regulated rate after treatment, to conform to the prescribed standards.					The guard pond is constructed at the terminal end of the effluent disposal. Two compartments are available for storage of treated liquid effluent and they are operating one by one; one is always kept in standby condition. Whenever a high pollution level is observed corrective action is taken immediately before reaching the effluent treatment plant so that the treated effluent adheres to the standards prescribed by GPCB limit. The condition is complied with				
xiv	Disposal site of Phosphogypsum, spent cathodes etc. should be impervious to avoid ground water contamination. These sites should have the approval of State pollution control Board. Adequate monitoring of the impounded sites (soil, surface, and ground water) should be carried out regularly and record maintained.					The disposal site of Phosphogypsum yard is impervious lined to avoid ground water contamination. The MoEFF & CC, New Delhi has removed the condition for storage of spent cathode vide letter dated 17.08.1995. The disposal site of Phosphogypsum is approved by GPCB vide letter no. GPCB/HAZ/GEN-55(8)42131 dated 1st Dec 2000. The adequate monitoring of soil, surface and ground water is carried out on a regular basis and record is maintained. The soil quality is as under				

Date of Sampling	pH of 10% solution Near Phosphogypsum yard	Bulk Density	Moisture	Alkalinity	Acidity	Organic Matter
Pre monsoon season						
15.06.2023	8.18	2.52	5.90	63.50	Nil	0.10
Monsoon Season						
16.08.2023	8.07	3.02	13.32	51.78	Nil	0.13
Post Monsoon Season						
15.10.2023	8.10	2.66	8.88	40.44	Nil	0.12

Ground water quality is attached as below. The observed values of parameters monitored are well within limits, hence condition is complied with.
Ground Water Analysis (Average) near Solid Waste Facility (Oct-23 to March-2024)

	Unit	HP-01	HP-02	HP-03	HP-04	HP-05	HP-06	HP-07	HP-08	HP-09	HP-10
pH	--	8.09	7.40	6.99	7.25	7.91	7.15	6.68	8.99	6.49	7.49
SS	mg/L	17.33	17.38	22.03	24.32	18.78	16.98	26.67	15.88	20.36	22.10
TDS	mg/L	7802	26400	24217	7050	5928	31317	41833	3289	36433	22467
COD	mg/L	19.03	21.03	18.79	21.38	20.06	18.88	20.49	20.26	18.37	19.20
BOD3	mg/L	6.34	7.01	6.26	7.13	6.69	6.29	6.83	6.75	6.12	6.40
Fluoride	mg/L	0.50	0.09	1.22	0.00	1.22	0.13	0.11	0.49	0.06	0.38
Copper	mg/L	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nickel	mg/L	0.202	0.191	0.213	0.218	0.210	0.204	0.201	0.208	0.207	ND
Iron	mg/L	0.02	0.02	0.02	0.03	ND	0.04	0.02	0.03	0.06	0.01
Zinc	mg/L	0.42	5.99	5.82	4.23	3.49	4.33	3.92	2.00	7.23	3.65
Chloride	mg/L	3700	3883	3659	3704	3535	3667	3732	3903	3729	3542
O&G	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/L	0.005	0.005	0.002	0.002	0.000	0.002	0.000	0.002	0.001	0.001
Chromium	mg/L	BDL	0.001	0.002	BDL	0.002	0.001	0.00037	0.002	0.004	0.002
Color	Hazen	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Taste	---	Saline	Saline	Saline	Saline	Saline	Saline	Saline	Saline	Saline	Saline

HP- Hand pump

xv	The radium content in the Jordan rocks proposed to be imported should be intimated to Ministry of Environment & Forests.	The radium content in Jordan rocks analysis report was intimated to Secretary AERB, Director, IPSD and ITSD government of India, Mumbai. The report was submitted to Ministry of Environment Forest and Climate Change. However, Phosphoric acid plants are shut down for a longer period. The condition is complied with:
xvi	Spent Cathode should be enclosed in reinforced cement concrete vaults/ container before disposal. Recovery of carbon and fluoride from the spent cathode lining should be attempted.	The spent cathodes are totally recycled in smelter hence enclosure of spent cathode is kept in reinforced cement concrete vaults/stainless steel container and recycled in process, therefore further recovery of carbon and fluoride from spent cathode lining is not done. However, the condition related to spent cathodes was removed by MoEF & CC vide letter dated 17-08-1995. The condition is complied with.
xvii	Fluoride levels in the ground water around the project site should be monitored on a regular basis and report submitted to this Ministry every 6 months.	Fluoride levels in the ground water around the project site is monitored regularly and it is reported to MoEF & CC on six monthly bases. Concentration of fluoride in ground water is well within the limit. Please refer to condition no. xiv pg. no.11.The condition is complied with.
xviii	Detailed risk analysis should be carried out and inventories located in such a manner so as to contain the impact zone under the worst scenario within the plant boundary. The risk analysis should include Hazard identification using standard methods, fault tree analysis, reliability and failure analysis and worst scenario for MCA such as catastrophic failure of tanks and pipelines. The risk analysis report should be submitted in this Ministry for review within a period of one year.	The detailed risk analysis is carried out and it is ensured that the inventories are in such a manner to contain the impact zone under the worst scenario within the plant boundary. The hazard identification was carried out by using a standard method. The technique used for the Hazard Identification is Maximum Credible Accident (MCA) analysis, which allows identification of an accident with probable maximum damage distance. Based on inventories identified and their probable hazards, an onsite emergency plan is prepared for risk mitigation and the plan is approved by regulatory authority. The report is already submitted to the Ministry dated 12 th November 2016.The condition is complied with.
xix	Efforts should be made to sell sulfuric Acid (H ₂ SO ₄) to the maximum extent possible. The capacity of the proposed phosphoric acid plant should be reduced to half so that the quantity of Phosphogypsum generated is reduced.	The effort has been made to maximize the sell through exporting of Sulphuric acid as well as ensuring captive consumption in phosphoric plants. The stipulated condition regarding the phosphoric acid plant capacity has been removed by MoEFF & CC vide letter No. J-11011/7/IAII (I) dated 28-06-1996. The condition is complied with.

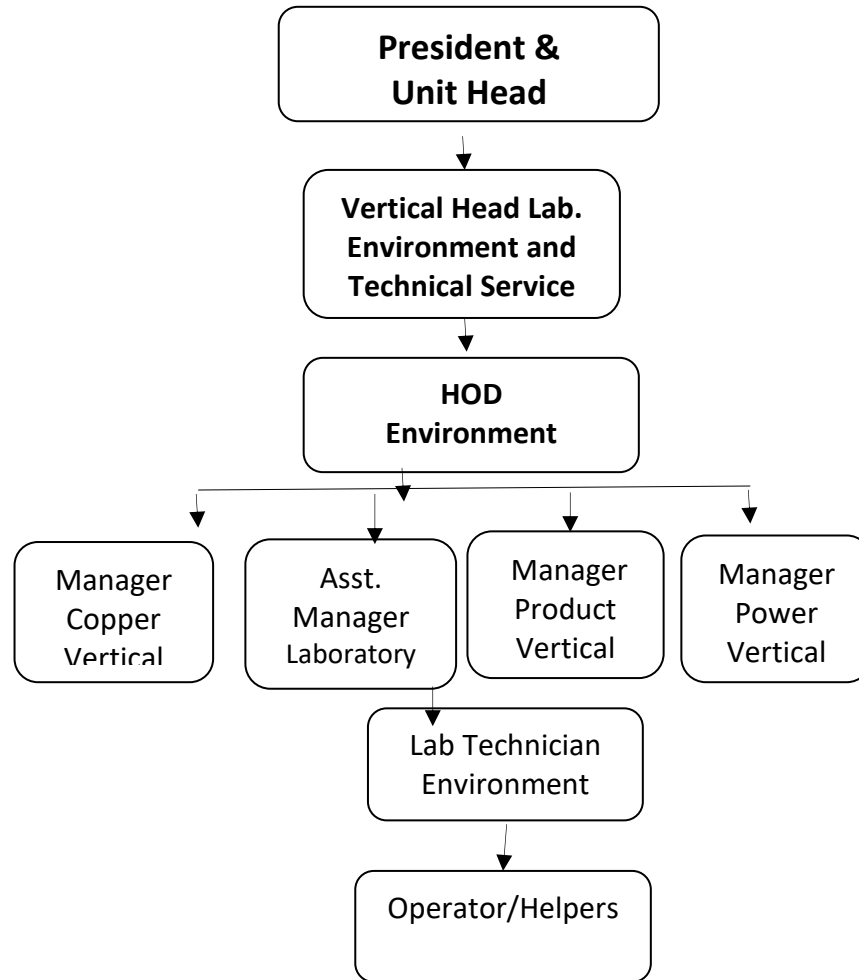
xx	Long term workable plan for utilization and disposal of Phosphogypsum should be worked out and report submitted to this Ministry for review within 10 months.	The company has signed agreements with several cement manufacturing companies to sell the Phosphogypsum. The generation and disposal report submitted to MOEF on regular basis.																														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">Oct-2023 to March- 2024</th> </tr> <tr> <th style="width: 33%;">Year and Month</th> <th style="width: 33%;">Generation</th> <th style="width: 33%;">Dispatch to Cement & POP manufacturer</th> </tr> <tr> <th>Unit</th> <th>MT</th> <th>MT</th> </tr> </thead> <tbody> <tr> <td>Oct-23</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Nov-23</td> <td style="text-align: center;">0</td> <td style="text-align: center;">4590</td> </tr> <tr> <td>Dec-23</td> <td style="text-align: center;">0</td> <td style="text-align: center;">16917</td> </tr> <tr> <td>Jan-24</td> <td style="text-align: center;">0</td> <td style="text-align: center;">16231</td> </tr> <tr> <td>Feb-24</td> <td style="text-align: center;">0</td> <td style="text-align: center;">54938</td> </tr> <tr> <td>Mar-24</td> <td style="text-align: center;">0</td> <td style="text-align: center;">61116</td> </tr> <tr> <td style="text-align: center;">Total</td> <td style="text-align: center;">0</td> <td style="text-align: center;">153792</td> </tr> </tbody> </table>		Oct-2023 to March- 2024			Year and Month	Generation	Dispatch to Cement & POP manufacturer	Unit	MT	MT	Oct-23	0	0	Nov-23	0	4590	Dec-23	0	16917	Jan-24	0	16231	Feb-24	0	54938	Mar-24	0	61116	Total	0	153792
Oct-2023 to March- 2024																																
Year and Month	Generation	Dispatch to Cement & POP manufacturer																														
Unit	MT	MT																														
Oct-23	0	0																														
Nov-23	0	4590																														
Dec-23	0	16917																														
Jan-24	0	16231																														
Feb-24	0	54938																														
Mar-24	0	61116																														
Total	0	153792																														
xxi	A study to assess the impact due to disposal of solid waste/sludge on land should be carried out and report submitted to this Ministry for review within 6 months.	A study to assess the impact due to disposal of solid waste /sludge on land is carried out by Industrial Toxicology Research Centre Lucknow. The report is already submitted to the Ministry, dated April 2002.The condition is complied with.																														
xxii	A study to assess the impact of the proposed pipeline for disposal of treated effluent should be carried out and reports submitted to this Ministry for review within 6 months.	A study to assess the impact of the pipeline for disposal of treated effluent is carried out by National Institute of Oceanography, Goa. The report is already submitted to the Ministry. The condition is complied with.																														
xxiii	A community welfare scheme for improving the socio-economic environment should also be worked out and report submitted to this Ministry for review within 6 months.	A community welfare scheme for improving the socio-economic environment is worked out and the report is submitted to the Ministry. The CSR activities of the unit have been appreciated at all levels and the unit has received many awards for the same. The condition is complied with.																														
xxiv	The project authorities must submit on-site/off-site emergency preparedness plan based on detailed risk analysis. Approval from the nodal agency should be obtained for the above plan.	The on-site/off-site emergency preparedness plan based on detailed risk analysis is carried out and obtained approval of required nodal agency. The condition is complied with.																														

xxv	All recommendations made in the EMP based on comprehensive EIA report and detailed risk analysis reports should be implemented.	The recommendations made in the EMP based on comprehensive EIA report by Tata Consultancy services are implemented. The condition is complied with.																																												
xxvi	A detailed green belt development plan should be submitted to this Ministry for review within 3 months. The proposed green belt design should have scientific basis and plant species identified should be indigenous and not exotic varieties.	<p>The detailed green belt development plan is prepared and submitted accordingly to the ministry dated August 1995. The proposed green belt designed and prepared by a competent expert on the scientific basis. The Species identified are indigenous and nontoxic. The condition is complied with.</p> <p>The various species planted in and around the plant site are given in the table below:</p> <table border="1" data-bbox="1294 400 2011 1220"> <thead> <tr> <th>Scientific name</th> <th>Common name</th> </tr> </thead> <tbody> <tr><td>Acacia arabica</td><td>Babul</td></tr> <tr><td>Annona squamosa</td><td>Sitafal</td></tr> <tr><td>Azadirachta indica</td><td>Neem</td></tr> <tr><td>Borassus sp</td><td>Borldi</td></tr> <tr><td>Callistemon lancedltus</td><td>Bottle brush</td></tr> <tr><td>Cassia fistula</td><td>Cassia</td></tr> <tr><td>Casurinia equisetifolia</td><td>Casurina</td></tr> <tr><td>Cessalpennia pulcherima</td><td>Gultora</td></tr> <tr><td>Dalbergia sissoo</td><td>Sissoo</td></tr> <tr><td>Delonix regia</td><td>Gulmohar</td></tr> <tr><td>Dendrocalamus strictus</td><td>Bamboo</td></tr> <tr><td>Ficus bengalensis</td><td>Bargad</td></tr> <tr><td>Ficus benzimean</td><td>Rubber plant</td></tr> <tr><td>Ficus indica</td><td>Banyan</td></tr> <tr><td>Ficus religiosa</td><td>Peepal</td></tr> <tr><td>Hibiscus sp</td><td>Hibiscus</td></tr> <tr><td>Mangifera indica</td><td>Mango</td></tr> <tr><td>Nerium sp</td><td>Kanar</td></tr> <tr><td>Peltophorum ferrugineum</td><td>Peltophorum</td></tr> <tr><td>Plumeria alba</td><td>Champa</td></tr> <tr><td>Spathodia campanulata</td><td>Spathodia</td></tr> </tbody> </table>	Scientific name	Common name	Acacia arabica	Babul	Annona squamosa	Sitafal	Azadirachta indica	Neem	Borassus sp	Borldi	Callistemon lancedltus	Bottle brush	Cassia fistula	Cassia	Casurinia equisetifolia	Casurina	Cessalpennia pulcherima	Gultora	Dalbergia sissoo	Sissoo	Delonix regia	Gulmohar	Dendrocalamus strictus	Bamboo	Ficus bengalensis	Bargad	Ficus benzimean	Rubber plant	Ficus indica	Banyan	Ficus religiosa	Peepal	Hibiscus sp	Hibiscus	Mangifera indica	Mango	Nerium sp	Kanar	Peltophorum ferrugineum	Peltophorum	Plumeria alba	Champa	Spathodia campanulata	Spathodia
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xxvii	The project authorities must set up laboratory facilities for collection and analysis of samples under the supervision of competent technical personnel who will report directly to the Chief Executive.	<p>A full-fledged separate Environmental Laboratory is set up and equipped with all necessary instruments/ equipment's. The following equipment and consumable are available in the laboratory:</p> <table border="1"> <tr> <td>CAAQMS (03)</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 (3)</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 (03)	OCEMS (35)	Atomic Absorption Spectrophotometer	Weather station	PM2.5, PM10 Combo	Stack Monitoring Kit (3)	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
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ENVIRONMENTAL MANAGEMENT CELL

Environment



xxviii	A separate Environmental Management Cell with suitable qualified people to carry out various functions should be set up under the control of senior executive who will report directly to the Head of the Organization.	A separate Environmental Management Cell is established headed by suitable qualified person, who reports to President & Unit Head. Kindly refer the reply of condition no. xxvii. The condition is complied with
xxix	The funds earmarked for the environmental protection measures should not be diverted for any other purpose and year wise expenditure should be reported to the Ministry.	The Funds earmarked for Environment protection measures are used only for Environment Protection purpose. Details of expenditure for operation of pollution control measures are regularly submitted to Ministry. The cost incurred on environment control measures is as under:
Capital Cost for Environmental Control Measures		
Sr. No.	Item	Total (Lacs)
1	Dryer bag filer & de dusting 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	SLF for ETP waste	700
13	PG, slag & Fly ash yard- for Phase-III	2000
14	Bag filters for CHP CPP-III and ash management	800.38
15	Liberator scrubber	141
16	PMR plant Bag filter	50
17	Fluorine scrubbing system in PAP-III	203.08
18	Scrubbing system for DAP-III plant	300
19	Green belt development	600
20	Tertiary Water Recycling Unit	6754
21	Wind fencing for coal yard	1395
	Total	38806(388.06 crores)

xxx	Proposed Jetty and the related infrastructure should be in conformity with the provisions of the Coastal Regulation Zone.	The Jetty and the related infrastructure are in conformity with the provisions of the Coastal Regulation Zone Act-2011 and amended 2013.The condition is complied with.
xxxi	Screening of pollutants in the harbor waters should be taken up by the project authorities and periodical monitoring reports on water quality parameters must be forwarded to this Ministry at six monthly intervals.	The screening of pollutants in the harbor waters is carried out on regular basis by competent agency, Gujarat Ecological Society (GES), Vadodara. The laid down quality parameters are periodically monitored, and the report is forwarded to the Ministry on six monthly bases. Last Six months water quality data observed in the harbor water are as under:

Analysis results of harbor water are as below: Sea water quality near treated effluent discharge (Oct-23 to March-2024)

Sr. No	Parameters	Units	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	GPCB Norms	Treated Effluent analysis report Average (Oct-23 to Mar-24)
1	pH	--	7.71	7.64	7.66	7.60	7.53	7.56	5.5-9.0	7.62
2	Temp	°C	30.40	30.98	30.16	30.54	30.00	30.43	45	30.42
3	Colour	units	10.14	10.15	10.07	10.76	10.10	10.86	100	10.35
4	Suspended Solids	mg/L	19.02	19.87	19.49	19.77	19.86	19.64	100	19.61
5	COD	mg/L	33.81	37.00	37.81	32.75	32.55	36.06	250	35.00
6	BOD 3 day at 27o C	mg/L	8.34	8.01	8.40	8.00	7.84	8.04	100	8.10
7	Oil & Grease	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20	<0.1
8	Phenolic compound	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5.0	<0.1
9	Ammonical N2	mg/L	9.70	9.63	9.01	9.57	9.69	9.84	50	9.57
10	Sulphides	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5.0	<0.2
11	Cyanides	mg/L	Nil	Nil	Nil	Nil	Nil	Nil	0.2	Nil
12	Fluoride	mg/L	1.85	1.93	2.05	2.12	1.98	2.16	10	2.02
13	Hexa. Chromium	mg/L	0.39	0.36	0.42	0.45	0.43	0.41	1.0	0.41
14	Total Chromium	mg/L	0.45	0.47	0.43	0.40	0.44	0.46	2.0	0.44
15	Copper	mg/L	0.21	0.26	0.21	0.24	0.24	0.22	3.0	0.23
16	Nickel	mg/L	0.09	0.08	0.10	0.09	0.10	0.09	5.0	0.09
17	Zinc	mg/L	0.26	0.25	0.25	0.22	0.28	0.30	15.0	0.26
18	Mercury	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005
19	Lead	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1	<0.005
20	Arsenic	mg/L	0.02	0.01	0.05	0.04	0.04	0.04	0.2	0.03

21	Cadmium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.000	<0.01
22	Insecticides and Pesticides	mg/L	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
23	Selenium	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.050	<0.01
24	Bio-Assay Test	% Survival of fish after 96 hrs in 100 % effluent.	96.38	96.57	96.94	96.70	96.54	96.25	95.000	96.56

All values are well within limits, hence condition is complied with.

xxxii	A comprehensive disaster Management Plan considering worst-case disaster scenarios with respect to specific cases like oil/ chemical spills, fire/explosion, terrorist attack, flood, etc. Spelling out definite/adequate measures to be taken to prevent and contain such disasters. A report on this must be forwarded to this Ministry within six months from the date of issue of the environmental clearance.	A comprehensive disaster Management Plan prepared, considering worst case disaster scenarios with respect to specific cases like oil/ chemical spills, fire/explosion, terrorist attack, flood, etc. and adequate measures are taken to prevent and contain such disasters accordingly. The reports prepared and submitted to the Ministry dated August 1997. The condition is complied with
xxxiii	To prevent discharge of sewage, bilge wastes and other liquid wastes into the marine environment, adequate system for collection, treatment and disposal of liquid wastes including shoreline interceptor for receiving liquid wastes from all shoreline installations and special hose connection for ships to allow for discharge of sewage must be provided.	Adequate measures are taken for collection, treatment and disposal of liquid waste including shoreline interceptors to prevent discharge into the marine environment. The sewage from the ship is collected through hose connection in tanker and sent to STP for further treatment and disposal. The condition is complied with
xxxiv	Appropriate devices such as oil water separator, oil monitor, oil skimmer etc. must be provided to remove all floatable material including oil spills while re-fueling the vessels, because of operations of cargo handling equipment and allied machinery, cranes, tractors etc. to tackle the oil pollution in the port area and marine environment.	An appropriate devices and action is taken such as, use of Oil spill dispersant, Oil skimming pads and Portable Oil spill dispersant pumps are provided to remove all floated material and oil spill to tackle the oil pollution in port area and in marine environment. The condition is complied with
xxxv	Proper firefighting arrangements must be ensured by providing adequate number of fire hydrants in free prone areas. The entire firefighting line must be maintained under pressure through jockey pumps for appropriate volume of dead storage water must be ensured for this purpose. The employees must be kept alert and trained to combat fire by conducting regular fire drills to keep these facilities in working conditions.	Adequate firefighting arrangement is provided in plant as depicted as under: <ul style="list-style-type: none"> All plants/ facilities are connected with fire Hydrant system, kept under pressure to control any fire / emergency. A water sprinkler system is provided in the Fuel storage area. Three Fire tenders are placed. 1529 Fire extinguishers are installed within the plants.

		<ul style="list-style-type: none"> • Fire Alarm system and smoke detection system are installed. • Availability of Safety shower, Breathing Apparatus sets, Air Line Respirator, Life Jackets, Aluminum fire entry suits, Fire Proximity suits, etc. • Personal Protective Equipment's like Helmet, safety shoes, safety goggles, etc., to all employees. • Regular training for safe working and firefighting is provided. • Regular fire drills/mock drills are conducted. <p>The condition is complied with</p>																																																							
xxxvi	The quality of treated effluents, solid wastes, emissions and noise levels etc. must conform to the standards laid down by the competent authorities including central/state Pollution control board and under the Environment (Protection) Act, 1986, whichever are more stringent.	The qualities of treated effluents - kindly refer compliance of condition no." x". The Solid waste management - kindly refer compliance of condition no." xx". The emissions conformity - kindly refer compliance of condition no." iv". The noise levels monitored at different locations are as under. The Noise level observed is all well within limit, Hence Condition is complied with																																																							
	<p>Monitored ambient noise levels(dB) from Oct-23 to Mar-2024 (Average)</p> <table border="1"> <thead> <tr> <th rowspan="2">Sr No.</th> <th rowspan="2">Location</th> <th>Day time</th> <th>Nighttime</th> </tr> <tr> <th>Noise Level in dB(A)</th> <th>Noise Level in dB(A)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Near Smelter-I</td> <td>65.2</td> <td>62.5</td> </tr> <tr> <td>2</td> <td>Near SAP-I</td> <td>63.8</td> <td>62.5</td> </tr> <tr> <td>3</td> <td>Near ETP Plant</td> <td>62.6</td> <td>61.0</td> </tr> <tr> <td>4</td> <td>Near Captive Power Plant-1</td> <td>66.8</td> <td>64.2</td> </tr> <tr> <td>5</td> <td>Near DAP</td> <td>63.4</td> <td>61.8</td> </tr> <tr> <td>6</td> <td>Near Smelter-III</td> <td>65.5</td> <td>63.3</td> </tr> <tr> <td>7</td> <td>Near Guest house in T/ship</td> <td>60.3</td> <td>59.0</td> </tr> <tr> <td>8</td> <td>Near Central Park in T/ship</td> <td>60.1</td> <td>58.6</td> </tr> <tr> <td>9</td> <td>Near YMA Hostel</td> <td>60.7</td> <td>59.3</td> </tr> <tr> <td>10</td> <td>Near Gypsum yard (boundary wall)</td> <td>62.5</td> <td>61.0</td> </tr> <tr> <td>11</td> <td>Near Coal yard</td> <td>62.8</td> <td>61.0</td> </tr> <tr> <td>12</td> <td>Near Jetty Platform</td> <td>65.1</td> <td>63.2</td> </tr> </tbody> </table>			Sr No.	Location	Day time	Nighttime	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	7	Near Guest house in T/ship	60.3	59.0	8	Near Central Park in T/ship	60.1	58.6	9	Near YMA Hostel	60.7	59.3	10	Near Gypsum yard (boundary wall)	62.5	61.0	11	Near Coal yard	62.8	61.0	12	Near Jetty Platform	65.1	63.2
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xxxvii	The project authority should take necessary measures to avoid adverse impact on marine life in consultation with the Zoological Survey of India.	The study has been carried out by a competent expert agency approved by the Government of Gujarat i.e., Gujarat Ecology Society, Vadodara, to																																																							

		avoid adverse impact on marine life. The report clearly indicates that the ecosystem is stable and no significant change is observed over last decades. It could be concluded from the study that the ecosystem around the coastal waters surrounding the Birla Copper installations and discharge point has maintained a healthy environment without any deviation in the physical and chemical properties of the waters or sediments. The condition is complied with
xxxviii	The project authority should take approval of State Pollution Control Board for the proposed dumping site within the plant area and provide proper lining of the area.	The Company has already taken approval from the State Pollution Control Board for the dumping sites within the plant area vide notification no. GPCB/HAZ/GEN-55 (8)/ 42131 dated 01.12.2000. The unit has provided proper lining at disposal site. The condition is complied with
xxxix	With respect to the facilities, if any to be provided within 500 mts. If HTL, the directions issued by the Supreme Court on 12.12.1994 in respect of Writ Petition No.664/93 and 561/94 should be complied with. In view of this no construction work pertaining to jetty etc. within 500 mt of HTL should be undertaken.	The unit is complying with the direction issued dated 12.12.1994 from Hon'ble Supreme court in respect of Writ petition no-664/93 and 561/94. The condition is complied with