



DAHEJ HARBOUR AND INFRASTRUCTURE LIMITED

Dated: 06th Nov-2024

To,
The Deputy Director General of Forests (C)
Ministry of environment, forest and climate change
Integrated. Regional office, Gandhinagar

Letter Ref No. DHIL/BC/ENV/I/15040/2024-25/57

Sub: Submission of six-monthly compliance reports for April-24 to Sept-24

Ref: 1. Environmental Clearance for Copper smelter and jetty facilities Dahej vide letter No.11011/7/94-IA II dated 14-03-1995.

2.Environment clearance for approval of construction of approach bund for Copper Smelter project at Dahej vide letter no. J-17011/18/93-IA.III dated 12-01-1996 letter No. J-11011/ 7/94-IAII(I) dated 03-01-2000.

Sir,

Please find enclosed herewith six-monthly compliance report along with necessary annexure for, April-24 to September-24 for DHIL. This is as per the condition laid down in the clearances issued by Ministry of Environment and Forests.

For your kind perusal please.

Yours faithfully
For Dahej Harbour and Infrastructure Ltd.

Sanghamitra Mishra
HOD (Environment)

CC:

1. The Director- EAC-1, Ministry of Environment, Forests & Climate Change, Paryavaran Bhavan, Jorbagh Road, Aliganj, New Delhi – 110 003
2. Central Pollution Control Board, Parivesh Bhavan East Arjun Nagar, New-Delhi-110032
3. The Member Secretary, Gujarat Pollution Control Board, Paryavaran Bhavan, Sector -10 A, Gandhinagar - 382 010

Encl: As Above

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Six Monthly Compliance report

**DAHEJ HARBOUR AND
INFRASTRUCTURE LIMITED**

For

April-24 to Sept-24



DAHEJ HARBOUR AND INFRASTRUCTURE LIMITED

PO: Dahej, DAHEJ

DIST: BHARUCH - 392 130

GUJARAT, INDIA

Dahej Harbour and Infrastructure Ltd

P. O. Dahej, DAHEJ

Status of compliance to conditions of Environmental Clearance for Copper smelter and Jetty facilities Dahej
vide letter no.11011/7/94-IA II dated 14-03-1995.

(Six monthly compliance report from April 24 to Sept 24)

SI No	Condition stipulated	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 Consolidated consent & authorization obtained for captive jetty facility at Dahej, District Bharuch vide letter no. CCA No. AWH-111163 dated 16-01-2021 which is valid up to 05-10-2025. The stipulation laid down by State Pollution Control Board is complied with. As such there is no condition stipulated by State Government.
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.	Not Applicable to captive Jetty.
iii.	Comprehensive EIA report for the proposed copper smelter and captive jetty facilities should be submitted within 15 months.	A Comprehensive Environmental Impact report for the Jetty facility was submitted to MoEFF & CC and GPCB in August 1996 as per the requirement
iv.	The gaseous emissions from various process units should confirm 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 operation immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.	There is no as such process units which is resultant to gaseous emission. Therefore, compliance of gaseous emission standard is not required. This is covered in HIL, EC Compliance.
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 are 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.	The environment clearance is combined for smelter unit and jetty operation both. The AAQM is related to HIL. However, we have installed one machine at jetty approach road, where we are monitoring the Ambient Air Quality and report is submitted to Ministry periodically along with Regional office Bhopal. The AAQM report is covered in Environmental clearance, Hindalco Industries Limited.

<p>vi.</p>	<p>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.</p>	<p>There is no SO₂ and fluoride emission at jetty. There is no process stack. However, a small bag filter is attached at transfer point in jetty on belt conveyor to control the fugitive emission. Analysis results of Jetty conveyor bag filter stack and ambient air quality at jetty is attached below</p> <table border="1"> <thead> <tr> <th colspan="7">DAHEJ HARBOUR AND INFRASTRUCTURE Stack & AAQM analysis report</th> </tr> <tr> <th rowspan="3">Sr No.</th> <th rowspan="3">Month</th> <th colspan="5">April 24 to Sept 24</th> </tr> <tr> <th>Jetty Conveyer Bag Filter Stack</th> <th colspan="4">Ambient Air Monitoring at DHIL</th> </tr> <tr> <th>Particulate matter mg/Nm³</th> <th>PM10</th> <th>PM 2.5</th> <th>SOX</th> <th>NOX</th> </tr> <tr> <th colspan="2">PCB Norms</th> <td>150 mg/Nm³</td> <td>100</td> <td>60</td> <td>80</td> <td>80</td> </tr> </thead> <tbody> <tr> <td>1</td> <td>April-24</td> <td>44.34</td> <td>60.2</td> <td>32.48</td> <td>31.21</td> <td>25.77</td> </tr> <tr> <td>2</td> <td>May-24</td> <td>42.98</td> <td>58.8</td> <td>30.23</td> <td>28.96</td> <td>22.34</td> </tr> <tr> <td>3</td> <td>June-24</td> <td>45.89</td> <td>56.97</td> <td>31.21</td> <td>27.76</td> <td>24.24</td> </tr> <tr> <td>4</td> <td>July-24</td> <td>40.28</td> <td>54.45</td> <td>29.56</td> <td>26.17</td> <td>22.89</td> </tr> <tr> <td>5</td> <td>Aug-24</td> <td>42.38</td> <td>58.24</td> <td>30.91</td> <td>28.28</td> <td>23.9</td> </tr> <tr> <td>6</td> <td>Sept-24</td> <td>44.28</td> <td>56.24</td> <td>28.9</td> <td>30.12</td> <td>24.36</td> </tr> </tbody> </table> <p>The belt conveyor is operated when unloading of material is done, most of the time the belt is under stoppage. Therefore, operation of continuous monitoring system is not feasible. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.</p>	DAHEJ HARBOUR AND INFRASTRUCTURE Stack & AAQM analysis report							Sr No.	Month	April 24 to Sept 24					Jetty Conveyer Bag Filter Stack	Ambient Air Monitoring at DHIL				Particulate matter mg/Nm ³	PM10	PM 2.5	SOX	NOX	PCB Norms		150 mg/Nm ³	100	60	80	80	1	April-24	44.34	60.2	32.48	31.21	25.77	2	May-24	42.98	58.8	30.23	28.96	22.34	3	June-24	45.89	56.97	31.21	27.76	24.24	4	July-24	40.28	54.45	29.56	26.17	22.89	5	Aug-24	42.38	58.24	30.91	28.28	23.9	6	Sept-24	44.28	56.24	28.9	30.12	24.36
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<p>vii.</p>	<p>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.</p>	<p>Bag filter is installed to control the fugitive emission at transfer points. Mist, vapor fumes, SO₂ and HC are not generated at Jetty, therefore monitoring of above parameters are not applicable to jetty. Pyrite crushing, screening and handling is not done at jetty therefore there is no fugitive emission hence this is not applicable at Jetty. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.</p>																																																																									
<p>viii.</p>	<p>Adequate scrubbing system must be provided to remove silica, fluoride and rock phosphate dusts from flue gases.</p>	<p>There is no flue gas generated at jetty therefore scrubber is not applicable.</p>																																																																									

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 existing stacks are as per GPCB consents only. The condition is complied with
x	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	At Jetty there is no effluent generation therefore effluent monitoring is not required. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
xi	The treated effluents should conform to the prescribed standards and 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	There is no effluent generation, therefore treatment is not required. This is covered in HIL EC compliance. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	Jetty is not manufacturing unit therefore storm water and process water drains are not required, sanitary waste is collected in a dedicated tanker and disposed in our Sewage Treatment Plant in Hindalco Industries limited. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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 are 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.	There is not effluent, no treatment therefore guard pond is not required. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	We are not handling Phosphogypsum and spent cathodes at jetty therefore disposal site approval is not required. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.

xv	The radium content in the Jordan rocks proposed to be imported should be intimated to Ministry of Environment & Forests.	Complied with. Jordan rocks are not being imported since April 2021, once we will resume the import, we will intimate to MoEFCC for radium content. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	Spent cathode is not stored at Jetty, therefore disposal, recovery of carbon and fluoride from spent is no applicable. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	There is no source of fluorine, therefore not applicable. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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 1 year	No inventory is stored in jetty area, hence not applicable. The hazards identification and risk analysis is covered in HIL EC The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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 H ₂ SO ₄ is generated at Hindalco Industries Limited and is used in Phosphoric acid production and sold out in market, presently Phosphoric acid plant is stopped. Therefore, point no. xix is not applicable to jetty. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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 Phosphogypsum is generated at Hindalco Industries limited and we have long term plan for utilization and disposal. The point no. xx is not applicable to jetty. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.

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.	No solid waste is disposed at jetty; Hence the point no. xxi is not applicable to jetty. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	There is no treated effluent at jetty, however proposed pipeline for disposal of treated effluent of Hindalco Industries Limited at Jetty has been studied by National Institute of Oceanography (NIO). The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	The community welfare scheme is undertaken by Hindalco industries Limited, and report is submitted to Ministry periodically. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	Jetty does not fall under Factory Act-1947/ Gujarat Factory Rule-1967, risk analysis approval from nodal agency is not required, hence this is not applicable to jetty. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
xxv	All recommendations made in the EMP based on comprehensive EIA report and detailed risk analysis reports should be implemented.	Recommendation of EIA and EMP is already implemented in 1995, compliance of point no xxv in Six monthly compliance report of the year 2020 is not relevant, hence point no xxv is not applicable now. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	There is no soil on jetty therefore green belt development is not possible, hence point no. xxvi not applicable. The compliance of this condition is covered in HIL, EC
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.	The laboratory is established in Hindalco industries limited premises where analysis of sample collected at DHIL is done under the supervision of senior executive. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.

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 Cell is established with suitable qualified people to carry out various functions in Hindalco Industries Limited premises, who also takes care of DHIL. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.	Is already done as per EIA during commissioning of plant in the year 1995. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
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.
xxxii	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. Details of harbor water Analysis Report is attached Annexure- 2
xxxiii	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.	Jetty does not fall under Factory Act-1947/ Gujarat Factory Rule-1967, hence comprehensive disaster management plan is not required, However, we have internal risk assessment plant and we are managing the risk as per our own assessment. The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.
xxxiiii	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 interceptor to prevent discharge into the marine environment. The sewage from ship is collected through hose connection in tanker and sent to STP of M/s Hindalco Industries Limited for further treatment and disposal. As such there is no effluent generation at jetty, therefore treatment is not required, however we have Effluent treatment plant in Hindalco Industries Limited premises. The analysis report is already provided in HIL, EC compliance report. The condition is complied with

xxxiv	<p>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.</p>	<p>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.</p> <p>To avoid the chances of oil / fuel spillage near jetty, no refueling facilities are allowed for ships at the jetty side. Secondly the unloading equipment is electrically operated.</p> <p>The condition is complied with</p>									
xxxv	<p>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.</p>	<p>Adequate firefighting arrangement is provided in plant as depicted as under:</p> <table border="1"> <tr> <td>All plants/ facilities are connected with fire Hydrant system, kept under pressure to control any fire / emergency.</td> </tr> <tr> <td>Water sprinkler system is provided in the Fuel storage area.</td> </tr> <tr> <td>Three Fire tenders are placed.</td> </tr> <tr> <td>1529 Fire extinguishers are installed within the plants.</td> </tr> <tr> <td>Fire Alarm system and smoke detection system are installed.</td> </tr> <tr> <td>Availability of Safety shower, Breathing Apparatus sets, Air Line Respirator, Life Jackets, Aluminum fire entry suits, Fire Proximity suits, etc.</td> </tr> <tr> <td>Personal Protective Equipment's like Helmet, safety shoes, safety goggles, etc., to all employees.</td> </tr> <tr> <td>Regular training for safe working and firefighting is provided.</td> </tr> <tr> <td>Regular fire drills/mock drills are conducted.</td> </tr> </table> <p>The condition is complied with</p>	All plants/ facilities are connected with fire Hydrant system, kept under pressure to control any fire / emergency.	Water sprinkler system is provided in the Fuel storage area.	Three Fire tenders are placed.	1529 Fire extinguishers are installed within the plants.	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.
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xxxvi	<p>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.</p>	<p>The study has been carried out by a competent expert agency approved by 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</p>									

		<p>discharge point has maintained a healthy environment without any deviation in the physical and chemical properties of the waters or sediments.</p> <p>The marine study report of Gujarat Ecology Society, Vadodara does not contain test reports of treated effluents, solid wastes, emission and noise level monitoring.</p> <p>The condition is complied with</p>
xxxvii	The project authority should take necessary measures to avoid adverse impact on marine life in consultation with the Zoological Survey of India.	<p>The study has been carried out in the year 2022-23, by a competent expert agency approved by 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.</p> <p>The condition is complied with.</p> <p>Report is attached herewith as Annexure-1</p>
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.	<p>There is no dumping site on jetty, hence point no. xxxviii is not applicable.</p> <p>The compliance of this condition is covered in Environmental clearance, Hindalco Industries Limited.</p>
xxxix	With respect to the facilities, if any to be provided within 500 mts. Of HTL, the directions issued by the supreme court on 12.12.94 in respect of writ petition no.664/93 and 561/94 should be complied with. In view of this n construction work pertaining to jetty etc. within 500 MT of HTL should be under taken	<p>Direction issued by Supreme Court for facilities within 500 mtrs. of HTL is being complied with</p> <p>The unit is complying the direction issued dated 12.12.1994 from Hon'ble Supreme court in respect of Writ petition no-664/93 and 561/94.</p> <p>The condition is complied with</p>

Annexure-I

MARINE ENVIRONMENT MONITORING FOR IN THE INSHORE WATERS OF GULF OF KHAMBHAT, OFF DAHEJ, SURROUNDING TO EFFLUENT DISCHARGE POINT OF HINDALCO INDUSTRIES LIMITED (UNIT: BIRLA COPPER), DAHEJ
Study Team
Project Co-coordinator: Dr. Jayendra. Lakhmapurkar
Dr. Deepa Gavali
Mr. Hareesh Panseriya
February-2023

EXECUTIVE SUMMARY

- 1 Gujarat Ecology Society (GES) is engaged in regular monitoring of the marine environment around submarine outfalls and jetty installations of Hindalco Industries Ltd. (Unit: Birla Copper). The present study was carried out during the post-monsoon season in December 2022.
- 2 Three transects between 21°40' N to 21°43' N latitudes and 72° 28' to 72° 31' E longitudes were taken covering 10 Km² during both tides. A total of six stations were sampled representing upstream and downstream of the jetty and discharge point of Birla Copper Ltd. Physico-chemical and biological parameters were studied at these stations.
- 3 Water samples were collected from the surface, middle, and close to the bottom at all sampling points. Parameters like temperature and pH were recorded at the field itself. Samples were preserved for DO/BOD studies. Sediments were collected from stations 2, 4, 5, and 6 for lab analysis. Phytoplankton, Zooplankton, and benthic samples were collected and preserved for lab analysis of biota.

- 4 Routine parameters like Total Suspended Solids, DO, BOD, Salinity, PO₄-P, Total Phosphorus, NO₃-N, NO₂-N, and Total Nitrogen were carried out at the GES laboratory. Heavy metals (Cu, Cd, Cr, Zn, Hg, Pb & Ni) were analyzed using AAS. Phytoplankton and Zooplankton were isolated for identification and quantification like wet biomass, numerical density, species composition, and species diversity. Benthos was examined for enumerating diversity. The sediment samples were examined for total organic carbon, texture, and heavy metals (Cu, Cd, Cr, Zn, Hg, Pb & Ni).
- 5 Water temperature varied from 21°C to 27.5°C during both tides. The turbidity ranged from 200 NTU to 1800 NTU, indicative of high turbidity, which is the general characteristic of the Gulf waters. pH was in the efficient buffering range of the sea and the environment with a characteristic alkaline (8.13 to 8.20) water column nature. The salinity varied in the wide range of 28.18 ppt and 32.02 ppt.
- 6 The average TSS value of surface samples in the low tide were 0.51 g/l while that during the high tide was 0.49 g/l. There was no major difference between the high tide and low tide.
- 7 The Dissolved Oxygen (DO) content showed that the study area is well-oxygenated (3.60 to 5.06 mg/l) during the high tide. While during the low tide oxygen levels reported were 5.52 to 9.23 mg/l.
- 8 The Ammonical nitrogen ranged between 0.23 to 0.60 mg/l, under the prescribed limit of GPCB. Nitrates and Nitrites content indicated the presence of more nitrates (mean concentration: 0.02 mg/l) compared to nitrites (min: 0.09 mg/l, max: 0.29 mg/l). This is indicative of good health and oxidizing conditions that prevail in the environment. The Total nitrogen ranged between 0.51 mg/l to 0.75 mg/l.
- 9 Inorganic phosphates, which are an assimilative form to organisms for tissue built-up were found in the range of 0.04 to 0.29 mg/l. Whereas the total phosphate recorded was in the range of 0.22 and 0.50 mg/l.
- 10 The highest Chlorophyll *value* was reported from station 2(1.43 mg/l) followed by station 6 (1.398 mg/l) during the high tide. Even during the low tide the Chlorophyll *ranged* between 1.327 mg/l to 1.338 mg/l. The waters of the gulf are productive and supported by low pheophytin values.

- 11 The average metal concentration in the water column recorded was Hg - 0.28 ppb, Ni - 0.91 µg/l, Cr -3.55 µg/l, Cd- 0.38 µg/l, Pb – 4.56 µg/l, Zn – 7.25 µg/l and Cu- 8.74 µg/l). the values were within the limits prescribed by CPCB for marine samples.
- 12 A total of 21 phytoplankton species were reported in the present study. *Navicula spp*, *Coscinodiscus gigas*, and *Surirella spp* are the most common species reported from all the sampled stations. The species reported largely belonged to the Bacillariophyceae group. The phytoplankton density was reported high at station 5 (10.86 individuals/l) and low density (5.67 individuals/l) was reported at station 2. The phytoplankton density was reported high during the low tide as compared to the high tide. There is more productivity during the low tide because of high light penetration.
- 13 A total number of 37 zooplankton species belonging to different groups was reported in the present study. *Clausocalanus sp*, *Oithona sp.*, and Polychaete larva were reported from all the stations. This indicates the presence of the species in the area irrespective of the open waters or estuary part. The group Calanoida, Copepoda, and Decapoda is represented in all the sampling sites. The zooplankton density was high at stations 4 and 6 during the high tide whereas during the low tide, the zooplankton density was high at station 1. Stations 4 and 6 are close to the shoreline.
- 14 Levta is the major fishery of the region and the vast mudflats of the Gulf of Khambhat support *levta* fishery. Bombay duck, Shrimps, and crabs are the other contributors to the Fishery of the region.
- 15 The 96 hrs. static bioassay test on fish guppy at the industrial site was carried out by Birla Copper Ltd. The results showed 96% survival in 96 hrs., indicating good quality of effluents.
- 16 The mangroves found near the Birla Copper jetty were dominated by *Avicenna marina*, which is the most common and dominating species of the Gulf of Khambhat. Birds like egrets and herons were noticed in the mangroves.
- 17 Three Dolphin were sighted at the time of the sampling, and this indicates the presence of good productive waters.

Dahej Harbour and Infrastructure Ltd
P. O. Dahej, DAHEJ

Status of compliance to conditions of Environment clearance for approval of construction of approach bund for Copper Smelter project at Dahej
vide letter no. J-11011/18/93-IA.III dated 12-01-96 and letter no. J-11011/7/94- I All (I) dated 03-01-2000
(Six monthly compliance report from April-24 to Sept-24)

SI No	Condition stipulated	Compliance Status
1.	Conditions stipulated vide Ministry's O.M No.J.11011/7/94-IA-II dated 14 th March 1995 should be strictly implemented.	The Consolidated consent & authorization obtained for captive jetty facility at Dahej, District Bharuch vide letter no. CCA No. AWH-111163 dated 16-01-2021, which is valid up to 05-10-2025. The stipulation laid down by State Pollution Control Board is complied with. As such there is no condition stipulated by State Government.
2.	No quart activity should be undertaken within 500 M of Coastal Regulation Zone	Construction of jetty and its related structure are in compliance with the provisions of coastal regulation zone.
3.	Muck generated during construction and various activities should be properly disposed off at designated sites and proper leveling /dressing should be ensured.	Muck generated during construction and various activities had been properly disposed of at designated sites and proper leveling /dressing was done. Hence the condition is complied with. At Construction site during construction of jetty the muck has been managed as per government guidelines
4.	No ground water should be tapped within 500 M of HTL for any construction activity.	No ground water is being tapped within 500 M of HTL for any construction activity, condition is complied with.
5.	The pile approach be so designed as to have minimum interference with the tidal movement in the region.	Construction of approach bund is up to 1320 mts. from HTL, piled approach is for 1044 mts. and berthing platform is 210 mts. long for jetty, which is now operational.
6.	Ministry reserves the right to add additional conditions, required, if any in future on the basis of results of the monitoring report.	Shall be complied with the additional conditions stipulated by Ministry on the basis of results of the monitoring report.
7.	Full support to be extended to the scientists from this Ministry's Regional office at Bhopal during monitoring stage by furnishing data and reports on the follow up action initiated on various conditions stipulated in our O.M No.J.11011/7/94-IA-II dated 14 th March,1995	Full support from DHIL will be extended to the scientists coming from Ministry's Regional office from Bhopal, by furnishing data and reports on the action initiated on various conditions stipulated in office memorandum, No.J.11011/7/94-IA-II dated 14 th March,1995.

8.	In case of any deviation or alteration in the project proposal from those submitted to this Ministry for clearance, a reference should be made for re-appraisal.	Shall be complied with.
9.	These stipulations would be enforced among others under the provisions of the water (Prevention and control of pollution Act, 1974 and Air (Prevention and control of pollution Act 1986 and the public liability (insurance) Act 1991 along with their amendments and rules.	All regulations regarding environment are being complied with as per the requirement. Consolidated consent & authorization has been received from the Gujarat Pollution Control Board vide order No. AWH 111163 dated 16-01-2021 for DHIL, which is valid up to 05-10-2025.