Promoting Green Technology

Gujarat Alkalies and Chemicals Limited
(Promoted by Govt. of Gujarat)
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Phone : +91-2641- 613200
CIN NO : L24110GJ1973PLC002247

ENV/2024-25/E-28/ ART/17

20th December, 2024

To,
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office-Gandhi Nagar,
A-Wing – 407 & 409, Aranya Bhawan,
Near CH-3 Circle, Sector-10A,
Gandhi Nagar – 382010

Sub: Submission of half yearly compliance report of EC for the period of April-2024 to September-2024.

Ref.: - (1) EC issued vide letter no. SEIAA/GUJ/EC/4(d)/138/2023 dtd 04.02.2023
(2) Corrigendum in EC vide letter no. SEIAA/GUJ/EC/4(d)/138/2023 dtd- 04/02/2023
(3) EC issued vide letter no. SEIAA/GUJ//EC/4(d)&5(f)/900/2017 dtd 29.09.2017

Dear Sir,

With reference to above, we are enclosing herewith six-monthly compliance report of above ECs for the period of April-2024 to September-2024.

Thanking you,
Yours faithfully,

For Gujarat Alkalies and Chemicals Limited-Dahej

S. N. PATEL
DGM (S, E & F)

Encl: As Above

Status of Compliance of EC No. SEIAA/GUJ/EC/4(d)/238/2022 dtd. 03rd February, 2022 and Corrigendum in EC vide letter no. SEIAA/GUJ/EC/4(d)/138/2023 dtd- 04/02/2023 as on 30th September 2024

Project activity pertaining to the proposal mentioned in the above EC has not been commenced as on September 2024. The progress of the activity and corresponding compliance shall be updated to the concerned authority as and when the activities start.

Status of Compliance of EC No. SEIAA/GUJ/EC/4(d)&5(f)/900/2017 dtd- 29/09/2017 as on 30th September 2024

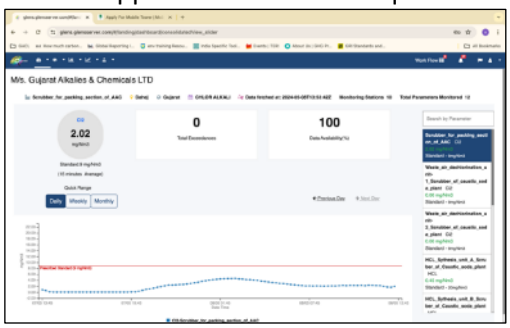
1. Caustic Soda Plant (Expansion)- CTE and CTO obtained. Plant is operational.
2. Hydrogen Peroxide Plant (Expansion) - CTE and CTO obtained from GPCB. Plant is operational.
3. Phosphoric Acid Plant (Expansion) – CTE and CTO is obtained. Plant is under commissioning stage.
4. Chloromethane Plant (New) - No activity started.
5. Hydrazine Hydrate (New)- CTE and CTO obtained. Under Commissioning stage.
6. Chlorotoluene (New)- No activity started.
7. Mono Chloro Acetic Acid (MCA) (New) - No activity started.

Sr. No.	EC Condition	Compliance status
	SPECIFIC CONDITIONS:	
1	Unit shall manufacture non- fertilizer [Technical / Food] grade Phosphoric acid as per the undertaking submitted along with EIA report.	**Complied.** GACL abides by the undertaking submitted along with EIA regarding manufacture of non- fertilizer [Technical / Food] grade Phosphoric acid.
2	Entire quantity of spent solvents shall be recovered by in- house distillation in such a manner that recovery shall not be less than 95 percent and recovered solvent shall be reused in the process within premises.	**Complied.** Solvent recovery is being achieved in Hydrogen peroxide expansion and phosphoric acid expansion projects. Recovered solvent is re-used in the process. Other project involving the use of solvents is still not operational.
3	Solvents namely Iso Amyl Alcohol, Ethyl Anthra Quinone & Methyl Ethyl Ketone shall be used in Hydrogen Peroxide, Phosphoric Acid Plants & Hydrazine Hydrate plants respectively. Recovery of solvent Iso Amyl Alcohol [used in Phosphoric acid plant] shall be through solvent recovery unit having activated carbon bed & condensers. Recovery of solvent Ethyl Anthra Quinone [used in hydrogen peroxide Plant] shall be through the distillation of solvent dissolved in calcium chloride brine. MEK-Methyl Ethyl Ketone [used in Hydrazine Hydrate plant] shall be recycled back to the process stream through Distillation unit operation.	**Noted and complied.** Solvents in Hydrogen Peroxide and Phosphoric acid plant are being recovered whereas the proposed and Hydrazine hydrate plant is under commissioning stage. Solvent in HH shall be recovered during operation phase.
4	Unit shall comply all the conditions & recommendations mentioned in the guidelines for the management of the spent solvents published by GPCB in letter and spirit.	**Complied.** All the conditions & recommendations mentioned in the guidelines for the management of the spent solvents published by GPCB is being complied. Key points of compliance are as below;

<table>
<tr><th>Sr. No.</th><th>EC Condition</th><th>Compliance status</th></tr>
<tr><td></td><td></td><td>

Records of management and disposal of the all the solvents is being maintained.
Principle of 4R is being practiced during management of solvent. Only non-recoverable and non-usable solvent is disposed through Pre-processing at authorized agency i.e M/s RSPL.
No Offsite distillation is done for solvent recovery.
Conveyance of spent solvent/ Aq-solvent is done only through dedicated vehicles registered with GPCB and complying the Hazardous Waste Rules-2016.
Manifest system for the movement of spent/ Aq-solvent is being followed.
Solvent recovery is achieved more than 95%
Solvents is stored in a separate space specified with all safety measures.
Breather valve is provided at solvent storage tank to prevent loss.
Reactor and solvent handling pump are provided with appropriate seals to prevent leakages.

</td></tr>
<tr><td>5</td><td>Leak Detection and Repair (LDAR) program shall be prepared and implemented as per the CPCB guidelines.</td><td>
Complied.
LDAR program has been prepared and integrated in SAP. LDAR schedule as per the guideline is as below;
<table>
<tr><th>Component</th><th>Frequency of monitoring</th><th>Repair schedule</th></tr>
<tr><td>Pump seals</td><td>Quarterly</td><td rowspan="9">Repair will be started at the earliest and shall be completed within 15 working days after detection of leak for general hydrocarbons</td></tr>
<tr><td>Compressor seals</td><td>Quarterly</td></tr>
<tr><td>Pressure relief devices</td><td>Quarterly</td></tr>
<tr><td>Pressure relief devices (after venting)</td><td>Within 24 hours</td></tr>
<tr><td>Heat Exchangers</td><td>Quarterly</td></tr>
<tr><td>Process drains</td><td>Annually</td></tr>
<tr><td>Components that are difficult to monitor</td><td>Annually</td></tr>
<tr><td>Pump seals with visible liquid dripping</td><td>Immediately</td><td>Immediately</td></tr>
<tr><td>Any component with visible leaks</td><td>Immediately</td><td>Immediately</td></tr>
<tr><td>Any component after repair/ replacement</td><td>Within five days</td><td>-</td></tr>
</table>
</td></tr>
<tr><td>6.</td><td>Intermediate products/ by-products mentioned in the</td><td>Agreed to Comply.</td></tr>
</table>

Sr. No.	EC Condition	Compliance status
	product list qualifying the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 and its amendment time to time shall be sold only to the potential users who are authorized by the competent authority (MoEFCC/CPCB/SPCB) and provisions of said rules shall be complied in letter and spirit.	Proposed intermediate product benzal chloride and by-products sodium benzoate, di benzyl ether and hydrochloric acid will be generated from the proposed chlorotoluene plant which is yet not erected.
7	The company shall submit the list of authorized end users of above-mentioned wastes along with MoU signed with them at least two months in advance prior to commencement of production. In absence of potential buyers of these items, the unit shall restrict the production of respective item.	**Agreed to Comply.** Proposed Chlorotoluenes plant is yet not constructed. MoU with the authorized end users will be signed once the chlorotoluene plant will be commissioned.
8	Continuous Emission Monitoring System (CEMS) shall be provided for monitoring of air pollutants and waste water discharge.	**Complied.** CEMS for monitoring of air pollutants and waste water discharge has been provided. Sample image of Dashboard is appended as below for quick reference. 
9	The Company shall install online chlorine gas detectors to detect leakage of chlorine at liquid chlorine storage tanks, chlorine bottling area/sodium hypo plant at vent pipe, HCl synthesis unit and electrolyser area. Caustic scrubber shall be provided in the HCl plant for absorption of chlorine/HCl from the stack. Dykes of adequate height shall be provided around the HCl acid tanks to collect the acid within the dyke walls in the event of catastrophic failure of the tank.	**Complied.**  Online chlorine gas detectors have been installed at around 24 strategic locations. Sample photo of one such detectors is appended as below. Caustic scrubbing system has been provided to scrub the chlorine which is sucked from various sections including HCL plant. Dykes of adequate height is provided around the HCl acid tanks.
10	The vent gases from Sodium hypochlorite plant and HCl acid plant shall be controlled at source by effective absorption system. Waste Chlorine gas shall be used in preparation of HCl. The vent gases shall be discharged from the stacks of adequate height for effective dispersion. Chlorine sensors shall be installed to monitor	**Complied.** Effective absorption system has been provided as a part of the design. Waste chlorine is being utilized in preparation of HCl. Adequate stack height of 30 m is provided for effective dispersion. Chlorine sensors have been installed at the

Sr. No.	EC Condition	Compliance status
	Cl2.	outlet of the vents to monitor Cl_2.
11	Fugitive emissions shall be regularly monitored and data recorded chlorine sensors shall be installed in the chlorine storage area at lower level between the tanks.	**Complied.** Fugitive emission monitoring is being done by around 24 chlorine sensors. Data is being recorded automatically round the clock through sensors which are interlinked with DCS system.
12	Unit shall comply all the conditions & recommendations mentioned in the guidelines.	**Noted for compliance.** All the conditions & recommendations mentioned in the relevant guidelines shall be complied.
13	Unit shall provide Continuous Emission Monitoring System [CEMS] for Waste water and Air emission.	**Complied.** Continuous Emission Monitoring System [CEMS] for Waste water and Air emission has been provided. Sample snap of the dashboard is already given above.
14	All measures shall be taken to prevent soil and ground water contamination.	**Complied.** Measures are in place for prevention of soil and ground water contamination viz. - Impervious flooring has been provided across the process and utility area. - Raw material handling and storage area is provided with pucca flooring. - Dedicated hazardous waste storage area has been provided with impervious flooring with leachate collection system with lifting arrangements. - Proper storm water drainage is provided with provisions of bund walls and gate valve systems to control the ground water contamination in case of any contamination.
15	The project proponent shall submit the detailed study report to Gujarat Pollution Control Board (GPCB) at least once in a year comprising details of percolation rate of surface water, ground water analysis and observations of contamination to soil & ground water (If any) and mitigation measures to curb ground water & Soil contamination.	**Agreed to comply.** Report of ground water analysis is being submitted to GPCB on monthly basis. Detailed study on percolation rate of surface water and ground water shall be undertaken after commissioning of all the proposed projects.
16	Necessary approvals from PESO and concerned Govt. Authorities shall be obtained before commissioning of the project.	**Complied.** All the necessary approvals have been obtained from PESO as well as other concerned authorities such as DISH, Dist. Administrative, etc.
	WATER:	
17	Total water requirement for the project shall not exceed 23,894 KL/day. Unit shall reuse 1,491 KL/day of process condensate in DM Plant and 1,586 KL/day from Cooling	**Complied.** Total water consumption does not exceed the stipulated quantity. Fresh water is met only through

<table>
<tr><th>Sr. No.</th><th>EC Condition</th><th>Compliance status</th></tr>
<tr><td></td><td>Tower & 300 KL/day treated water from STP for Gardening within premises. Hence, fresh water requirement shall not exceed 20,517 KL/day and it shall be met through GIDC water supply only.</td><td>GIDC water supply. Fresh water consumption data of compliance period is as below;
<table>
<tr><th>Sr. No.</th><th>Month</th><th>Avg. Quantity, KL/day</th></tr>
<tr><td>1</td><td>April 2024</td><td>349213</td></tr>
<tr><td>2</td><td>May 2024</td><td>368664</td></tr>
<tr><td>3</td><td>June 2024</td><td>355608</td></tr>
<tr><td>4</td><td>July 2024</td><td>350881</td></tr>
<tr><td>5</td><td>August 2024</td><td>342432</td></tr>
<tr><td>6</td><td>September 2024</td><td>349590</td></tr>
</table></td></tr>
<tr><td>18</td><td>Prior permission from the concerned authority shall be obtained for withdrawal of water.</td><td>Complied.
GACL has obtained prior permission for 6 MGD water from GIDC. Copy of the permission is enclosed as Annexure-1.</td></tr>
<tr><td>19</td><td>No ground water shall be tapped for the project requirements.</td><td>Complied.
GACL assures that no ground water is tapped for the project requirements.</td></tr>
<tr><td>20</td><td>The water meter shall be installed and records of daily and monthly water consumption shall be maintained.</td><td>Complied.
Water meter has been installed across the complex and record is available. Photographs of the installed water meters are appended as below;
   </td></tr>
<tr><td>21</td><td>All efforts shall be made to optimize water consumption by exploring Best Available Technology (BAT).</td><td>Noted and complied.
Water conservation measures are implemented as inherited design. New options shall also be explored and implemented as per feasibility.</td></tr>
<tr><td>22</td><td>The unit shall continuously strive to reduce, recycle and reuse the treated effluent.</td><td>Complied.
3R principle is being effectively implemented for treated effluent via membrane based effluent treatment and recycle plant.</td></tr>
<tr><td>23</td><td>Industrial waste water generation after expansion shall not exceed 9,364 KL/day [Existing 4,902 + proposed 4,462] which shall be treated in existing & proposed ETPs.</td><td>Noted.
Industrial waste water generation does not exceed 9364 KL/day.</td></tr>
<tr><td>24</td><td>Total discharge of waste water into deep sea via company’s own underground pipeline after conforming</td><td>Complied.
Effluent discharge to deep sea is being monitored to</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>EC Condition</th><th>Compliance status</th></tr>
<tr><td></td><td>outlet norms prescribed by GPCB/CPCB/MoEFCC shall not exceed 5,987 KL/day.</td><td>ensure compliance of norms as well as the discharge limit of 5987 KL/day. Effluent discharge generation data of compliance period is as below;
<table>
<tr><th>Sr. No.</th><th>Month</th><th>Avg. Quantity, KL/day</th></tr>
<tr><td>1</td><td>April 2024</td><td>168042</td></tr>
<tr><td>2</td><td>May 2024</td><td>182832</td></tr>
<tr><td>3</td><td>June 2024</td><td>165744</td></tr>
<tr><td>4</td><td>July 2024</td><td>190229</td></tr>
<tr><td>5</td><td>August 2024</td><td>188909</td></tr>
<tr><td>6</td><td>September 2024</td><td>183202</td></tr>
</table></td></tr>
<tr><td>25</td><td>The company shall provide adequate effluent treatment plants for different manufacturing plants viz. Phosphoric Acid Plant, Hydrogen Peroxide Plant, Caustic Soda Plant, Poly Aluminium Chloride, Stable Bleaching Powder and Sodium Chlorate Plant consisting of primary treatment units for treatment of industrial effluent and it shall be operated regularly and efficiently so as to achieve the GPCB/CPCB/ MoEF&CC norms.</td><td>Complied.
Adequate primary ETP is provided separately for different manufacturing plants and these ETPs are operated regularly and efficiently to achieve the GPCB/CPCB/ MoEFCC norms.</td></tr>
<tr><td>26</td><td>The treated effluent for final disposal shall not exceed 5,987 KL/day and it shall be conveyed to the final discharge pipeline for deep Sea disposal after ensuring that it meets with the discharge norms prescribed by GPCB.</td><td>Complied.
Discharge of treated effluent is maintained well within the limit of 5987 KL/day and conveyed through deep sea via captive underground pipeline after achieving the discharge norms. Monitoring is being done by GPCB approved agency and reports are regularly submitted to GPCB and MoEFCC. Analysis report for the month of September is enclosed as Annexure-2.</td></tr>
<tr><td>27</td><td>The unit shall provide continuous online monitoring system at the outlet of the ETP system and maintain records for the same.</td><td>Complied.
Continuous online monitoring system at the outlet of the ETP system is provided. Record is maintained at respective plant.</td></tr>
<tr><td>28</td><td>Unit shall take steps/measures for reuse/recycle of waste water as proposed in EIA/EMP report.</td><td>Complied.
GACL have set up membrane-based water recycle plant of 3300 KLD capacity which is running on 30 to 40% load presently. The capacity will be scaled up gradually. Further measures for reuse/recycle of waste water is being explored.</td></tr>
<tr><td>29</td><td>Domestic wastewater generation shall not exceed 300 KL/day for proposed expansion project and it shall be treated in STP.</td><td>Complied.
Domestic waste water does not exceed 300 KL/day and it is being treated in STP.</td></tr>
<tr><td>30</td><td>Treated sewage shall be utilized for gardening and plantation within premises after achieving prescribed GPCB norms.</td><td>Complied.
Treated sewage is being utilized for gardening and plantation within premises after achieving prescribed</td></tr>
</table>

Sr. No.	EC Condition	Compliance status
		GPCB norms.
31	During monsoon season when treated sewage effluent may not be required for the plantation / Gardening / Green belt purpose, it shall be stored within premises. There shall be no discharge of waste water outside the premises in any case.	**Agreed to comply.** During rainy season, treated sewage is being stored in the earthen pond. No discharge of waste water outside the premises is being done.
32	Unit shall provide buffer water storage tank of adequate capacity for storage of treated waste water during rainy days.	**Complied.** Buffer storage tank (Lagoon) of 10,000 m3 capacity is provided.
33	The unit shall join and participate financially and technically for any common environmental facility / infrastructure as and when the same is taken up either by the GIDC or GPCB or any such authority created for this purpose by the Govt. / GIDC.	**Complied.** GACL have financially participated in a 100 MLD common desalination project by GIDC.
34	Proper logbooks of ETP, Chemical consumption, quantities and qualities of effluent discharge and reuse, power consumption etc. shall be maintained and shall be furnished to the GPCB from time to time.	**Complied.** Proper Logbook of ETP operation and chemical consumption is maintained. Record is available.
AIR:		
35	There shall be no additional fuel requirement and there shall be no additional fuel gas stack after expansion.	**Noted.**
36	Single Stage DM Water Scrubbing System shall be provided as APCM with HCl Synthesis unit in Caustic Soda Plant for control of HCl & Cl_2.	**Complied.** Single Stage DM Water Scrubbing System is provided as APCM with HCl Synthesis unit in Caustic Soda Plant.
37	Three Stage Caustic Scrubbing System shall be provided as APCM with Waste air De-Chlorination unit in Caustic Soda Plant for control of HCl & Cl_2.	**Complied.** Three Stage Caustic Scrubbing System is provided as APCM with Waste air De-Chlorination unit in Caustic Soda Plant for control of HCl & Cl_2.
38	Water Scrubbing followed by Caustic Scrubbing shall be provided as APCM with Vent Scrubber in Phosphoric Acid Plant for control of HCl, HF & Cl_2.	**Complied.** Water Scrubbing followed by Caustic Scrubbing is provided as APCM with Vent Scrubber in Phosphoric Acid Plant for control of HCl, HF & Cl_2.
39	Chilled Water Circulation shall be provided as APCM with Condenser in Phosphoric Acid Plant for control of HCl & Cl_2.	**Complied.** Chilled Water Circulation is provided as APCM with Condenser in Phosphoric Acid Plant for control of HCl & Cl_2.
40	Activated carbon adsorption system shall be provided as APCM with in solvent recovery unit of H_2O_2 Plant for control of HC.	**Complied.** Activated carbon adsorption system is provided as APCM with in solvent recovery unit of H2O2 Plant for control of HC.

Sr. No.	EC Condition	Compliance status
41	Caustic Soda Scrubber shall be provided as APCM with Scrubbing unit of Chlorotoluene plant for control of HCl & Cl_2.	**Noted.** Chlorotoluene plant is yet to be erected.
42	Caustic Soda Scrubber shall be provided as APCM with Reactor of MCA - Sec I for control of Cl_2.	**Noted.** Mono Chloro Acetic acid (MCA) plant is yet to be erected.
43	Caustic Soda Scrubber shall be provided as APCM with Reactor of MCA - Sec II for control of Cl_2.	**Noted.** Mono Chloro Acetic acid (MCA) plant is yet to be erected.
44	Unit shall take adequate measures to control fugitive emissions as below:	
	i. All the joints, flanges, pumps, glands, seals, valves shall be maintained in good conditions through timely predictive and preventive maintenance.	**Complied.** Timely predictive and preventive maintenance schedule for all the joints, flanges, pumps, glands, seals, valves is being done.
	ii. Regular workplace monitoring shall be carried out for HCl & Cl2 at various locations within plant.	**Complied.** Regular workplace monitoring is being carried out at various locations within plant in house as well as through GPCB approved external agency. Reports of the workplace monitoring for the month of September is enclosed as **Annexure-3**.
	iii. Boundary wall as Wind breaker shall be provided to restrict the dispersion of odor, dust from the site.	**Complied.** Boundary wall as wind breaker is already provide as the sought expansions are planned within the existing boundary of the complex.
	iv. Well-developed green belt is provided at the existing site and shall be maintained for the proposed project.	**Complied.** Green belt has been provided in the existing site. Also, as a part of the green belt, mangrove plantation of 50 Ha. land is being maintained in collaboration with Forest Dept. in Paniyadra village. Sample photo of the site is appended as below for quick reference.  
	v. All tanks being used for storage of odorous chemicals/ products shall be connected to vacuum system. Manometers shall be provided on these tanks. The vacuum shall be monitored on daily basis and actions shall be taken accordingly.	**Complied.** Tanks used for storage of odorous chemicals/ products is connected to vacuum system and manometers are provided on the tanks. Monitoring is being done on daily basis.

Sr. No.	EC Condition	Compliance status
	vi. All pumps handling hazardous chemicals shall be provided with mechanical seals to prevent fugitive emission. Wherever possible magnetic coupled pumps shall be used.	**Complied.** Mechanical seals have been provided in pumps handling hazardous chemicals to prevent fugitive emission. Sample photo as below. 
	vii. Any spillage from drums etc. shall be absorbed with saw dust / soda ash and moped clean. The contaminated absorbent will be safely disposed-off along with hazardous waste.	**Complied.** GACL houses skilled team for handling the spillage and contamination if any with appropriate absorbing media. The contaminated absorbent if any will be disposed-off safely.
	viii. Manual Handling of various chemicals shall be avoided and shall be designed by implementing latest automation technology.	**Complied.** Manual handling of chemicals is avoided to the maximum possible extent by using feasible automations.
45	Measures shall be taken to reduce the process vapors emissions as far as possible. Use of toxic solvents shall be minimum. All venting equipment shall have vapor recovery system.	**Complied.** All the vents of storage tanks are connected to seal pots to reduce the vapour emission. Photographs of indicating the same are appended as below; 
46	The fugitive emission in the work zone environment shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities from time to time (e.g. Directors of Industrial Safety & Health). Following indicative guidelines shall also be followed to reduce the fugitive emission.	**Complied** Work zone environment is being monitored regularly through online sensors as well as by approved external agencies. The emission is well within the standards prescribed by DISH.
	A) Internal roads shall be either concreted or asphalted or paved properly to reduce the fugitive emission during vehicular movement.	**Complied.** Internal roads are RCC roads which avoids fugitive emission during vehicular movement.
	B) Air borne dust shall be controlled with water sprinklers at suitable locations in the plant.	**Complied.** Air borne dust is being controlled through regular mechanical sweeping.
	C) A green belt shall be developed all around the plant boundary and also along the roads to mitigate	**Complied.** The sought expansion is planned within the existing

Sr. No.	EC Condition	Compliance status
	fugitive & transport dust emission.	well-established complex having green belt across the plant boundary as well as along the roads to mitigate fugitive & transport dust emission.
47	Regular monitoring of Volatile Organic Compounds (VOCs) shall be carried out in the work zone area and ambient air.	**Complied.** VOC Monitoring is carried out regularly, copy of the monitoring report is enclosed as **Annexure-4**
48	Solvent management shall be carried out as follows:	
	1) Reactor shall be connected to chilled brine condenser system to condensate solvent vapors and reduce solvent losses.	**Complied.** Reactors have been connected to chilled brine condenser system to condensate solvent vapors and reduce solvent losses as a design feature.
	2) Reactor and solvent handling pump shall have mechanical seals to prevent leakages.	**Complied.** Mechanical seals have been provided in reactor and solvent handling pump shall have to prevent leakages.
	3) The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% solvent recovery.	**Complied.** Sufficient HTA and residence time is provided for the condensers as a part of design feature by the technology suppliers.
	4) Solvents shall be stored in a separate space specified with all safety measures.	**Complied.** Separate storage provision is provided for solvents viz. MEK along with required safety measures such as split control valve, auto sprinkler system, nitrogen blanketing, Pressure release valve, online sensors, blow off valve, etc. photograph of storage tank is given herewith. 
	5) Proper earthling shall be provided in all the electrical equipment wherever solvent handling is done.	**Complied.** Proper earthling has been provided in all the electrical equipment wherever solvent handling is done.
	6) Entire plant shall be flame-proof. The solvent storage tanks shall be provided with breather valve to prevent losses.	**Complied.** Entire plant including lighting, pumps, motors, fixtures, etc. is ensured flame proof. Breather valve is provided at all the storage tanks to prevent losses. Sample photographs of breather valves is appended herewith. 
49	Airborne dust at all transfers operations/ points shall be controlled either by spraying water or providing enclosures.	**Complied.** All transfers operations/ points are provided with enclosures to prevent air borne dust.

Sr. No.	EC Condition	Compliance status
50	Regular monitoring of ground level concentration of PM10, PM2.5, SO2, NOx, Cl2, HCl, HC, HF, NMHC and VOC shall be carried out in the impact zone and its records shall be maintained. Ambient air quality levels shall not exceed the standards stipulated by the GPCB. If at any stage these levels are found to exceed the prescribed limits, necessary additional control measures shall be taken immediately. The location of the stations and frequency of monitoring shall be decided in consultation with the GPCB.	**Complied.** Ambient air quality monitoring is being done as per NAAQMP. Measured values are well within the standard. Analysis reports of the same are enclosed here as **Annexure-5**.
51	Stack/Vents (Whichever is applicable) of adequate height shall be provided as per the prevailing norms for flue gas emission/Process gas emission.	**Complied.** Stack/Vents of adequate height has been provided for flue gas emission/Process gas emission.
52	Adequate Air Pollution Control Measures [APCM] shall be provided.	**Complied.** Adequate Air Pollution Control Measures [APCM] has been provided as per the commitment made in the EMP.
53	Flue gas emission & Process gas emission shall conform to the standards prescribed by the GPCB/CPCB/MoEFCC. At no time, emission level should go beyond the stipulated standards.	**Complied.** Emission from the stacks and process vents is well within norms in existing plants. Monitoring is being done regularly on monthly basis. Analysis reports for the month of September are enclosed as **Annexure-6.**
54	All the reactors / vessels used in the manufacturing process shall be closed to reduce the fugitive emission.	**Complied.** Only closed reactors / vessels are used in the manufacturing process to reduce the fugitive emission.
55	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826 (E) dated 16th November, 2009 shall be followed.	**Complied.** Ambient air quality monitoring is being done as per NAAQMP. Measured values are well within the norms.
	HAZARDOUS / SOLID WASTES:	
56	The company shall strictly comply with the rules and regulations with regards to handling and disposal of Hazardous waste in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016, as may be amended from time to time. Authorization of the GPCB shall be obtained for collection / treatment / storage / disposal of hazardous wastes.	**Complied.** Authorization has been obtained from GPCB vide AWH-129880. All the relevant requirements are being complied. Copy of the same are enclosed here as **Annexure-7**.
57	Any by-products which fall under the purview of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016 shall be handled	**Complied.** Authorization has been obtained from GPCB for applicable hazardous waste. By-products sodium

Sr. No.	EC Condition	Compliance status
	as per the said rules and necessary permissions from the concern authority shall be obtained.	benzoate, di benzyl ether and hydrochloric acid will be generated from the proposed chlorotoluene plant which is yet not erected.
58	Hazardous waste shall be dried, packed and stored in separate designated hazardous waste storage facility with pucca bottom and leachate collection facility before its disposal.	**Complied.** Hazardous waste storage facility with pucca bottom and leachate collection facility has been provided and utilized. A sample photo is appended below for quick reference. 
59	Brine sludge generated from the Caustic Soda Plant, Mix Filter cake (Chemical Sludge) & Spent Carbon from Hydrogen Peroxide Plant shall be disposed to company's own TSDF.	**Complied.** Brine sludge, Mix Filter cake (Chemical Sludge) is being disposed into own TSDF. Spent Carbon having high calorific value is destined for co- processing/pre-processing at approved agencies as and when generated.
60	High M.P Liquid Impurities from Chlorotoluene Plant, Process Residue from Ketazine Synthesis and High Boilers including the Process residue from Chloromethane Plant shall be disposed to authorized Common Hazardous Waste Incinerator Facility [CHWIF].	**Noted.** Chloromethane Plant is not yet constructed.
61	Contaminated spent Alumina & Activated Carbon from Hydrogen Peroxide plant shall be disposed to authorized common TSDF site.	**Complied.** Contaminated spent Alumina & Activated Carbon from Hydrogen Peroxide plant was sent to authorized pre-processing facility during the compliance period of Oct to Mar 2024.
62	Spent Catalyst from Hydrogen Peroxide Plant shall be sold to authorized and approved vendors.	**Complied.** Spent Catalyst from Hydrogen Peroxide Plant is being sold to authorized and approved vendors.
63	Discarded drum / containers shall be either reused or returned back to suppliers or sold only to the authorized recyclers.	**Complied.** Discarded drum/ containers are sold only to the authorized recyclers. Records along with manifest is maintained.
64	The unit shall obtain necessary permission from the	**Complied.**

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	nearby TSDF site and CHWIF.	Necessary permission from the nearby TSDF site and Pre-processing facilities i.e M/s BEIL, M/s RSPL, etc. Copy of the same is enclosed here as **Annexure-8**
65	Trucks/Tankers used for transportation of hazardous waste shall be in accordance with the provisions under the Motor Vehicle Act, 1988, and rules made there under.	**Complied.** Trucks/Tankers used for transportation of hazardous waste is ensured to comply the provisions under the Motor Vehicle Act, 1988, and rules made there under.
66	The design of the Trucks/tankers shall be such that there is no spillage during transportation	**Noted and complied**
67	All possible efforts shall be made for Co-Processing of the Hazardous waste prior to disposal into TSDF/CHWIF.	**Noted**
	SAFETY:	
68	The occupier/project proponent shall strictly comply the provisions under the Factories Act 1948 and the Gujarat Factories Rules 1963.	**Noted and complied.**
69	The project authorities shall strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules (MSIHC) 1989, as amended time to time and the Public Liability Insurance Act for handling of hazardous chemicals etc. Necessary approvals from the Chief Controller of Explosives and concerned Govt. Authorities shall be obtained before commissioning of the project. Requisite On-site and Off-site Disaster Management Plans have to be prepared and implemented.	**Noted and complied.**
70	Main entry and exit shall be separate and clearly marked in the facility.	**Complied.** Proposed plants are planned within the well setup premises of existing integrated complex having separate entry and exit. Further, separate entry and exit gates are provided for manpower movement and material movement.
71	Sufficient peripheral open passage shall be kept in the margin area for free movement of fire tender/ emergency vehicle around the premises.	**Complied.** Sufficient open space is provided at the periphery for free movement of emergency vehicles/ fire tenders/ patrolling, etc.
72	Storage of flammable chemicals shall be sufficiently away from the production area.	**Complied.** Flammable chemicals in the form of raw materials and products are stored in dedicated storage area away from the production area and where applicable local administrative approval/ PESO approval has been obtained.

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73	Sufficient number of fire extinguishers shall be provided near the plant and storage area.	**Complied.** More than 1100 nos. of fire extinguishers are provided across the complex.
74	All necessary precautionary measures shall be taken to avoid any kind of accident during storage and handling of toxic / hazardous chemicals.	**Complied.** Necessary precautionary measures are in place such as; - Provision of ventilated Separate Fenced Shed and operational area. - Precautionary Tags/ Boards have been displayed. - Auto control (PLC) system with Safety instrumentation system. - Hazard specific Personnel Protective Equipment (PPEs)/ Protective systems. - Sufficient Lighting provision.
75	All the toxic/hazardous chemicals shall be stored in optimum quantity and all necessary permissions in this regard shall be obtained before commencing the expansion activities.	**Complied.** All the applicable permissions for optimum storage of toxic and hazardous chemicals have been obtained from relevant authorities such as PESO, DISH, district authorities.
76	The project management shall ensure to comply with all the environment protection measures, risk mitigation measures and safeguards mentioned in the Risk Assessment report.	**Complied.** Environment protection measures, risk mitigation measures and safeguards mentioned in the Risk Assessment report such as Gas detectors, Dyke wall provision, Level indicator, Earthing, flame arrestor & visual observation, Ready availability of fire extinguishers and fire hydrant system have been provided.
77	Only flame proof electrical fittings shall be provided in the plant premises.	**Complied.** Flameproof electrical fitting, lightings and other fixtures have been provided as per electrical area classification.
78	Storage of hazardous chemicals shall be minimized and it shall be in multiple small capacity tanks / containers instead of one single large capacity tank / containers.	**Complied.**
79	All the storage tanks shall be fitted with appropriate controls to avoid any leakages. Bund/dyke walls shall be provided for storage tanks for Hazardous Chemicals.	**Complied.** Appropriate controls are provided in storage tanks. Dyke wall of adequate capacity has been provided. Sample photo is given below for ready reference.

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80	Handling and charging of the chemicals shall be done in closed manner by pumping or by vacuum transfer so that minimal human exposure occurs.	**Complied.** Handling and charging of the chemicals are being done in closed manner through vacuum transfer system only.
81	Tie up shall be done with nearby health care unit / doctor for seeking immediate medical attention in the case of emergency.	**Complied.** Tie-up with health care units/Doctors is established with M/s Wellspring, Mumbai. Further, GACL have a full-fledged 5 bedded inhouse OHC with round the clock availability of doctors.
82	Personal Protective Equipments (PPEs) shall be provided to workers and its usage shall be ensured and supervised.	**Complied.** Appropriate PPEs are provided to workers and usage is supervised at the section level as well as at the plant level.
83	First Aid Box and required Antidotes for the chemicals used in the unit shall be made readily available in adequate quantity.	**Complied.** Around 81 Nos. of first aid box is provided at all the department and sections. Antidotes are available in the OHC.
84	Occupational health surveillance of the workers shall be done and its records shall be maintained. Pre-employment and periodical medical examination for all the workers shall be undertaken as per the Factories Act & Rules.	**Complied.** Occupational health surveillance of the workers is being done through in-house OHC as well as through external competent agency/ hospitals and its records are maintained. Pre-employment and periodical medical examination for all the workers is undertaken as per the Factories Act. Record is maintained.
85	Transportation of hazardous chemicals shall be done as per the provisions of the Motor Vehicle Act & Rules.	**Complied.** Transportation of hazardous chemicals is being ensured as per the provisions of the Motor Vehicle Act & Rules.
86	The company shall implement all preventive and mitigation measures suggested in the Risk Assessment Report.	**Noted and complied.**
87	Necessary permissions from various statutory authorities like PESO, Factory Inspectorate and others shall be obtained prior to commissioning of the project.	**Complied.** Necessary permissions from statutory authorities like PESO, Factory Inspectorate and others have been obtained prior to commissioning of the project.

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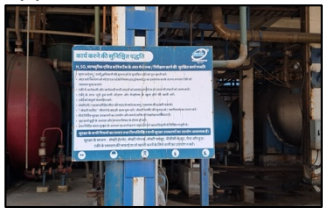
88	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be maintained.	**Complied.** Comprehensive training program has been prepared and followed to impart training to all employees on safety and health aspects of chemicals handling. During the compliance period of April-24 to Sept-24, total of 7135 man-hours training was imparted. Pre-employment and routine periodical medical examinations for all employees is being undertaken on regular basis through inhouse OHC doctors as well as through affiliation with external hospitals. Record is being maintained as Form-32.
89	Effective safety precaution shall be taken for chemical storage, process handling and transportation hazard.	**Complied.** Effective safety precaution as laid down in the EIA report is being taken.
90	Unit shall prepare and Implement SOP for safe operation of the works.	**Complied.** SOPs have been prepared and displayed at prominent places. Sample photograph of displayed SOP is appended as below;  
91	Comply the statutory provision of safety audit & its compliance report.	**Complied.** Safety audit is being undertaken through competent external auditors as per rule 10 of MSIHC rules, 1989, Factories Act 1948 and the chemical accident Rules 1996. Audit report, recommendations along with their compliance report is being submitted to DISH regularly.
92	Effective step shall be taken for prevention of fire, explosion & toxic release.	**Complied.** Effective steps as committed in the EIA report have been taken, reviewed and upgraded on regular basis for prevention of fire, explosion & toxic release.
	NOISE:	
93	The overall noise level in and around the plant area shall be kept well within the standards by providing noise control measures including engineering controls like acoustic insulation hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise level shall confirm to the standards prescribed under The Environment (Protection) Act, 1986 & Rules.	**Complied.** The overall noise level in and around the plant area is kept well within the standards through acoustic enclosures. The measured values of ambient noise level are well within the prescribed standards.

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	CLEANER PRODUCTION AND WASTE MINIMIZATION:	
94	The unit shall undertake the Cleaner Production Assessment study through a reputed institute / organization and shall form a CP team in the company. The recommendations thereof along with the compliance shall be furnished to the GPCB.	**Noted for compliance.** In-house CP assessment is being undertaken by competent technical staff having domain expertise in Water conservation, energy conservation, production management, waste management, etc.
95	The company shall undertake various waste minimization measures such as:	
	a) Metering and control of quantities of active ingredients to minimize waste.	**Complied.** Metering is provided at every sensitive point. Monitoring and control are being done as a part of the routine plant healthiness drive.
	b) Reuse of by-products from the process as raw materials or as raw materials substitutes.	**Noted.** Reuse of by-products from the process as raw materials or as raw materials substitutes is being explored as per feasibility.
	c) Use of automated and close filling to minimize spillages.	**Complied.** All the filling is done through closed and automated system only.
	d) Use of close feed system into batch reactors.	**Complied.** Closed feed system is employed in batch reactors.
	e) Venting equipment through vapor recovery system.	**Complied.** Vapor recovery system is implemented in solvent bearing process plant.
	f) Use of high-pressure hoses for cleaning to reduce wastewater generation.	**Complied.** High pressure hoses are provided for cleaning to reduce waste water generation.
	g) Recycling of washes to subsequent batches.	**Noted.** Recycling of washes is being explored.
	h) Recycling of steam condensate	**Complied.** Steam traps are provided at various locations to collect and reuse steam condensate.
	i) Sweeping/mopping of floor instead of floor washing to avoid effluent generation.	**Noted and complied.**
	j) Regular preventive maintenance for avoiding leakage, spillage etc.	**Complied.** Regular preventive maintenance is being done through engineering services team as per PM schedule.

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	GREEN BELT AND OTHER PLANTATION:	
96	The unit shall develop green belt within premises as per the CPCB guidelines. However, if the adequate land is not available within the premises, the unit shall take up adequate plantation on road sides and suitable open areas in GIDC estate or any other open areas in consultation with the GIDC / GPCB and submit an action plan of plantation for next three years to the GPCB.	**Complied.** Green belt has been provided in the existing site. Total 25000 trees are present within the site. In addition to above, due to scarcity of land within the premises, mangrove plantation of 50 Ha. land is being maintained in collaboration with Forest dept. in Paniyadra village.    Green Belt Developed within premises   Mangrove plantation of 50 Ha. land in collaboration with Forest Dept. in Paniyadra village
97	Drip irrigation / low-volume, low-angle sprinkler system shall be used for the green belt development within the premises.	**Complied.** Drip irrigation network has been provided for green belt development. Sample photo is appended as below.  
	OTHER CONDITIONS:	
98	The provisions of the Solid Waste Management Rules, 2016, e-Waste (Management) Rules, 2016, the Construction and Demolition Waste Management Rules, 2016 and the Plastics Waste Management Rules, 2016	**Noted and complied.** The provisions of the Solid Waste Management Rules, 2016, e-Waste (Management) Rules, 2016, the Construction and Demolition Waste Management

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	shall be followed.	Rules, 2016 and the Plastics Waste Management Rules, 2016 is being complied with.
99	Rain water harvesting of surface as well as rooftop runoff shall be undertaken and the same water shall be used for the various activities of the project to conserve fresh water as well as to recharge ground water. Before recharging the surface run off, pre-treatment must be done to remove suspended matter.	**Complied.** Surface rain water harvesting is being practiced. Earthen rain ponds with total volume of 30,000 M3 is developed which is used for green belt development. Sample photograph of rain water pond is appended herewith.  
100	The unit shall join and participate financially and technically for any common environmental facility / infrastructure as and when the same is taken up either by the Industrial Association or GIDC or GPCB or any such authority created for this purpose by the Govt. / GIDC.	**Complied.** GACL have financially participated in a 100 MLD common desalination project by GIDC.
101	Application of solar energy shall be incorporated for illumination of common areas, lighting for gardens and street lighting in addition the provision for solar water heating system shall also be provided.	**Complied.** Floating solar panels as well as roof top solar panels having capacity of 1MW power generation have been installed. 
102	The area earmarked as green area shall be used only for plantation and shall not be altered for any other purpose.	**Complied.** The area earmarked as green area is used only for plantation and not altered for any other purpose
103	All the commitments / undertakings given to the SEAC during the appraisal process for the purpose of environmental protection and management shall be strictly adhered to.	**Noted and agreed to comply.**
104	The project proponent shall also comply with any additional condition that may be imposed by the SEAC or the SEIAA or any other competent authority for the purpose for the environmental protection and management.	**Noted and agreed to comply.**
105	In the event of failure of any pollution control system adopted by the unit, the unit shall be safely closed down and shall not be restarted until the desired efficiency of	**Noted and agreed to comply.**

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	the control equipment has been achieved.	
106	The project authorities must strictly adhere to the stipulations made by the Gujarat Pollution Control Board (GPCB), State Government and any statutory authority.	**Noted and agreed to comply.**
107	During material transfer there shall be no spillages and garland drain shall be constructed to avoid mixing of accidental spillages with domestic wastewater or storm water.	**Complied.** Material transfer is planned in a secured and closed manner. Drain is provided surrounding each process plant to collect the spillage material if any
108	Pucca flooring / impervious layer shall be provided in the work areas, chemical storage areas and chemical handling areas to minimize soil contamination.	**Complied.** We have already provided pucca flooring/impervious layer in work areas, chemical storage and chemical handling areas.  
109	Leakages from the pipes, pumps, shall be minimal and if occurs, shall be arrested promptly.	**Noted and agreed to comply.**
110	No further expansion or modifications in the plant likely to cause environmental impacts shall be carried out without obtaining prior Environment Clearance from the concerned authority.	**Noted and agreed to comply.**
111	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act,1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and rules. The project proponent shall comply all the conditions mentioned in "The Companies (Corporate Social Responsibility Policy) Rules, 2014" and its amendments from time to time in a letter and spirit.	**Noted and agreed to comply.**
112	All the recommendations, mitigation measures, environmental protection measures and safeguards proposed in the EIA report of the project prepared by M/s: Kadam Environmental Consultants, Vadodara and submitted by project proponent vide letter no. GACL/EC/EIA/2017/01 dated 24/08/2017 and	**Noted and agreed to comply.**

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	commitments made during presentation before SEAC and proposed in the EIA report shall be strictly adhered to in letter and spirit.	
113	The project proponent shall comply all the conditions maintained in the companies (corporate social responsibility policy) rule, 2014 and its amendment from time to time in a letter and spirit.	**Complied.** GACL has been taking up a number of CSR activities in the surrounding villages in letter and spirit. Summary of CSR activities and cost allocation is presented in **Annexure-IX.**
114	The project management shall ensure that unit complies with all the environment protection measures risk mitigation measures and safeguarding recommended in the EMP report and risk assessment study report as well as proposed by project proponent.	**Complied.** GACL ensures to comply with all the environment protection measures risk mitigation measures and safeguarding recommended in the EMP report and risk assessment study report.
115	The project authorities shall earmark adequate funds to implement the conditions stipulated by SEIAA as well as GPCB along with the implementation schedule for all the conditions stipulated here in. The funds so provided shall not be diverted for any other purpose.	**Complied.** Separate provision of fund has been earmarked as part of the annual budget planning and allocation. The fund is being exclusively used for implementing the S&E activities as per conditions stipulated by authorities.
116	The applicant shall inform the public that the project has been accorded environmental clearance by the SEIAA and that the copies of the clearance letter are available with the GPCB and may also be seen at the website of SEIAA/SEAC/GPCB. This shall be advertised within seven days from the date of the clearance letter, in at least two local newspapers that are widely circulated in the region, one of which shall be in the Gujarati language and other in English. A copy each of the same shall be forwarded to the concerned Regional Office of the Ministry.	**Complied.** Wide circulation of the granted EC was done by publishing the news in 2 local newspapers on Oct 4, 2017. Also, the copy of EC is posted on the company's website. Cut out of the newspaper is appended as below for ready reference.  GACL Gujarat Alkalies and Chemicals Limited (An IS-ISO Certified Company) (Promoted by Govt. of Gujarat) Plot No. 3, GIDC Dahej – I, Taluka: Vagra, District: Bharuch, Gujarat NOTICE OF ENVIRONMENTAL CLEARANCE BY STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY (SEIAA), GUJARAT, FOR PROPOSED CAPACITY EXPANSION OF CHLOR-ALKALI AND SYNTHETIC ORGANIC CHEMICAL PRODUCTS AND ADDITION OF NEW SYNTHETIC ORGANIC CHEMICAL PRODUCTS WITHIN EXISTING PREMISES Notice is hereby given, to all concerned & public at large, that the Environmental Clearance is accorded by SEIAA, Gujarat for the proposed Capacity Expansion of Chlor-Alkali and Synthetic Organic Chemical Products and addition of New Synthetic Organic Chemical Products within Existing Premises at Plot No. 3, GIDC Dahej – I, Taluka: Vagra, District: Bharuch, Gujarat State vide its letter of clearance dated 29th September, 2017. The copy of the said clearance letter is available at the Gujarat Pollution Control Board and may also be seen at website of GPCB at http://seiaa.gujarat.gov.in/
117	The project proponent shall also comply with any additional condition that may be imposed by SEAC or the SEIAA or any other competent authority for the purpose of the Environment protection and management.	**Noted and agreed to comply.**
118	It shall be mandatory for the project management to submit half yearly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authorities concerned on 1st June and 1st Dec of each calendar year.	**Complied.** Six monthly/ compliance report is being submitted regularly via email. Copy of emails of last two six monthly submission is enclosed as **Annexure-X.**

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119	Concealing factual data or submission of false/fabricated data & failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance & attract action under the provision of Environment (protection) act, 1986.	**Duly noted.**
120	The project authorities shall also adhere to the stipulations made by Gujarat pollution Control Board.	**Noted and agreed to comply.**
121	The SEIAA may revoke or suspend the clearance, if implementation of any of the above conditions is not found satisfactory.	**Noted.**
122	The company in a time bound manner shall implement these conditions. The SEIAA reserves the right to stipulate additional conditions, if the same is found necessary.	**Noted**
123	The project authorities shall inform the GPCB, regional office of MoEFCC & SEIAA about the date of financial closure & final approval of the project by the concerned authorities & the date of start of the project.	**Noted.**
124	This environment clearance is valid for Seven years from the date of issue.	**Noted**
125	Any appeal against this environmental clearance shall lie with NGT, if proffered within the period of 30 days as prescribed under Section 16 of the NGT act, 2010	**Noted.**
126	Submission of any false or misleading information or data which is material to screening or scoping or appraisal or decision on the application makes this environment clearance cancelled	**Noted.**