



Gujarat Alkalies and Chemicals Limited

(Promoted by Govt. of Gujarat)

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GACL/S&E/Env-17/23

23.05.2023

To Whom so ever it may concern

Sub: Half yearly Compliance Report under specific condition of Environment Clearance

Ref: EC no. SEIAA/GUJ/EC/4(d) & 5 (f)/4037/2015 dated 30.11.2015 granted by SEIAA.

With reference to above please find half yearly compliance of EC conditions for the period ending June 01, 2023. We are also uploading compliance reports in our company's website link https://gacl.com/safety_env.php?nv=45_1.

Submitted for kind information please.

Thanking you,

For Gujarat Alkalies and Chemicals Ltd.,

Nikhil Bhargava 23/05/2023

Nikhil Bhargava
AGM (ES,TS,S&E,F&S, ESG)



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Compliance of Specific and General Conditions of Environment Clearance no. SEIAA/GUJ/EC/4(d) & 5 (f)/4037/2015 dated 30.11.2015 granted by SEIAA

A - Specific Conditions

A.-1 WATER

Sr. No.	Specific Conditions	Concern department
1.	No ground water shall be used for the project. Entire Water requirement of 6245 KLD after the proposed expansion shall be met through the own joint water supply scheme with GIPCL. No new borewell shall be dug within the premises as per the undertaking submitted in EIA report.	Ground water is not used. Water requirement is met from existing source only. No new borewell is dug. Average water consumption for the period Oct. 22 to March 23 is 4735 KLD which is less than 6245 KLD
2.	The industrial effluent generation from salt washery unit shall not exceed from existing 30 KLD due to proposed expansion and it shall be disposed into estuary of river mahi as per consent given by GPCB	Effluent generation from salt washery unit is stopped. Complied.
3.	The other industrial effluent generation (except from salt washery unit) shall reduce from existing 2470 KLD to 2461 KLD after the proposed expansion due to recycle / reuse of effluent	The average industrial effluent generation for the period Oct. 22 to March 23 is 1371 KLD which is less than 2461 KLD.
4.	Various measures shall be implemented as proposed for reducing the industrial effluent generation viz existing practices as well as reuse of condensate generated from the caustic evaporation unit into chemical preparation in the brine system.	All the measures are implemented. Complied
5.	The industrial effluent shall be treated in existing ETP. ETP shall be operated regularly and efficiently so as to achieve the GPCB norms at the ETP outlet.	We are operating ETP efficiently & are achieving effluent norms. Effluent quality is monitored by our QC, third party and online monitoring. Complied.
6.	The treated wastewater conforming to GPCB norms shall be discharged into ECP channel for its final disposal into estuary of river mahi	Complied. As per above point.
7.	The unit shall provide online system for monitoring of treated effluent quantity and quality, with an arrangement for reflecting the same on company's server, which can be assessed by GPCB on real time basis.	Online monitoring system is already implemented. Complied.
8.	The domestic wastewater generation shall not exceed from existing 280 KLD due to proposed expansion. Domestic ww shall be sent to STP for its further treatment and finally disposed at VECL	Domestic wastewater generation is < 280 KLD. Complied.

	along with industrial effluent	
9.	Proper logbooks of ETP operation and also showing the quantity of effluent generated, discharged into ECP channel, utilized for plantation/gardening, reused/recycled etc. shall be maintained and furnished to GPCB from time to time.	Logbook of ETP is maintained by our ETP operations staff. Complied.
10.	Regular performance evaluation of ETP shall be undertaken every year to check its adequacy through credible institutes like LD college of Engg, NPC or such other institute of similar repute and its records shall be maintained.	Regular performance evaluation of ETP is carried out once every year through GPCB approved Schedule I Env. Auditor. Complied.
11	Rain water harvesting of surface as well as of rooftop runoff shall be undertaken and the same water shall be used for various activities of the project to conserve fresh water as well as to recharge ground water. Before recharging the surface runoff, pretreatment must be done to remove suspended matters.	Company has rain water recharge facility. Complied.
12	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 Govt./GIDC	Is being complied with as and when required.

A-2 AIR

Sr. No.	Specific Conditions	Concern department
13	Out of total 5 boilers , three boilers shall be kept as standby and two boilers shall be running. Existing 3 DG sets shall be kept as standby.	Complied.
14	Natural gas to the tune of 2483 SCM/hr shall be used as a fuel for boilers.	Complied as we use only Natural gas as fuel.
15	No additional process vent shall be provided for the proposed expansion	Complied
16	At present, Alkali scrubber is provided with process stack attached to CS hypo plant to scrub the HCl and Cl ₂ gases. Water scrubbers are provided with process stack attached to HCl plant, CLM 1 & 2 plant to scrub the HCl gas. A stack for H ₂ O ₂ is also provided at the solvent recovery unit where the charcoal bed is provided.	Complied
17	Existing APCM shall be used for the proposed process emission from Hypo tower, HCl section of CS plant, HCl section of old and new CLM plant and solvent recovery plant.	complied.

18	The existing air pollution control equipments shall be operated efficiently and effectively to achieve the norms prescribed by the GPCB at stack outlets.	Existing air pollution control equipment are operated efficiently. We are meeting GPCB emission norms.
19	Online monitoring system shall be installed at the process vents of Hypo tower – Caustic Soda plant and Chloromethanes plant for monitoring of HCl and Cl ₂ parameters. Arrangement shall be made for reflecting the monitored values on the company's server, which can be assessed by GPCB on real time basis.	Online monitoring system installed for process vents for parameters HCl and Cl ₂ . Complied.
20	The company shall prepare schedule, carry regular preventive maintenance of air pollution control equipments and assign responsibility of preventive maintenance to the senior officer of the company.	Complied
21	The fugitive emission in work zone environment shall be monitored. The emission shall conform to the standards prescribed by concerned authority from time to time (e.g Directors of industrial safety and health)	Complied
22	Regular performance evaluation of air pollution control systems shall be undertaken every year to check its adequacy through credible institutes like LD college of Engg, NPC or such other institute of similar repute and its records shall be maintained	Regular performance evaluation of ETP is carried out once every year through GPCB approved Schedule I Env. Auditor.
23	Airborne dust at all transfers operations/points shall be controlled either by spraying water or providing enclosures.	Complied
24	Solvent management shall be carried out as follows	Complied
24 (1)	Reactor shall be connected to chilled brine condenser system to condensate solvent vapors and reduce solvent losses.	Complied
24 (2)	Reactor and solvent handling pump shall have mechanical seals to prevent leakages	Complied
24(3)	The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95 % solvent recovery.	Complied
24 (4)	Solvents shall be stored in a separate space specified with all safety measures	Complied
24(5)	Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.	Complied
24(6)	Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.	Complied
25	Regular monitoring of VOCs shall be carried out in the work zone area and ambient air.	Complied
26	For control of fugitive emission, VOCs following steps shall be followed:	Complied

	<p>a. Closed handling and charging system shall be provided for chemicals.</p> <p>b. Reflux condenser shall be provided over reactors/vessels.</p> <p>c. Pumps shall be provided with mechanical seals to prevent leakages.</p> <p>d. System of leak detection and repair of pump/pipeline based on preventive maintenance.</p>	
27	<p>Regular monitoring of ground level concentrations of SO₂, NO_x, Cl₂, HCl, PM 10 & PM 2.5 shall be carried out in impact zone and its record shall be maintained. Ambient air quality shall not exceed the standards stipulated by GPCB. If at any stage these levels are found to exceed the prescribed limits, necessary additional control measures shall be undertaken immediately. The location of the stations and frequency of monitoring shall be decided in consultation with the GPCB.</p>	<p>Regular monitoring of ambient air parameters like NO_x, SO₂, HCl, Cl₂, PM 10 & PM 2.5 is carried out through third party and schedule 1 auditors. Complied.</p>

A-3 SOLID/HAZARDOUS WASTE

Sr. No.	Specific Conditions	Concern department
28	<p>The company must strictly comply with the rules and regulations with regards to handling and disposal of hazardous waste in accordance with the Hazardous waste (M,H&TM) Rules 2008 as may be amended from time to time. Authorization from GPCB must be obtained for collection/storage/treatment/disposal of hazardous waste.</p>	<p>We have obtained consent order no AWH-101053 upto 31.12.2023. The hazardous waste are disposed according to consent order. Complied.</p>
29	<p>The 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.</p>	<p>The hazardous waste is stored in separate designated area before final disposal. Complied.</p>
30	<p>Used heating salt shall be sold to authorized recyclers or disposed at own landfill site. Salt washery and brine purification sludge, ETP sludge, incineration ash and used heating salt shall be disposed in company's own TSDF.</p>	<p>Complied.</p>
31	<p>Organic waste from H₂O₂ plant, activated charcoal and waste mixed chloromethane (Hi boilers) shall be sent to the common hazardous waste incineration facility (CHWIF)</p>	<p>Organic waste, activated charcoal and waste mixed chloromethanes is incinerated at CHWI facility as per CC&A issued by GPCB. Complied</p>
32	<p>Spent catalyst and molecular sieves shall be sent to authorized regeneration units or shall be disposed off at TSDF or CHWIF depending on its</p>	<p>Complied</p>

	characteristics.	
33	Discarded containers / barrels/ bags/liner shall be either reused or sold only to authorized recyclers after decontamination.	Complied
34	Used oil, discarded lead acid batteries, lead acid battery plates and other lead scrap and insulated copper wire scrap/copper with PVC sheathing shall be sold only to registered reprocessors.	Complied
35	The unit shall obtain membership of the common TSD/CHWIF (whichever is applicable)	Complied. We have obtained membership of CHWIF like SEPPL and RSPL
36	Vehicles 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
37	All possible efforts shall be made for co-processing of the hazardous waste prior to disposal into TSD/CHWIF.	Complied
38	The company shall provide additional ground water monitoring wells (three well clusters) around the captive TSD as per the "Criteria of Hazardous Waste landfills" published by CPCB. Quality of ground water in saturated zone beneath and around the landfills as well as other parameters like leachate quality, air quality etc. shall be monitored regularly as per the "Criteria of Hazardous Waste landfills" published by CPCB	We have provided four ground water monitoring wells. Quality of water in borewells and leachate well and ambient air quality is monitored/checked on regular basis through third party and schedule 1 auditors.

A-4 SAFETY

Sr. No.	Specific Conditions	Concern department
39	Provision of Manufacture, Storage and Import of hazardous chemicals rules 1986 and The Factories Act 1948 shall be strictly complied with.	Complied
40	The project authorities shall strictly comply with the provisions made in manufacture, storage and import of hazardous chemicals rules 1989, as amended in 2000 and the public liability insurance act for handling of hazardous chemicals etc. Necessary approvals from the CCE and concerned govt. authorities shall be obtained before commissioning of the project. Requisite onsite and offsite disaster management plans have to be prepared and implemented.	Complied
41	The unit shall obtain requisite permission from PESO, nagpur for storage of chlorine, hydrogen etc. before commissioning of expansion project.	Required permission obtained from PESO. Complied

42	All the necessary precautions measures shall be taken to avoid any kind of accident during storage and handling of toxic / hazardous chemicals, especially Cl2 & H2	Complied
43	Storage of hazardous chemicals shall be sufficiently away from the production area.	Complied
44	Sufficient no. of fire extinguishers shall be provided near the plant and storage area.	Complied
45	All the necessary precautions measures shall be taken to avoid any kind of accident during storage and handling of toxic / hazardous chemicals	Complied
46	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
47	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
48	Only flame proof electrical fittings shall be provided in the plant premises.	Complied
49	Storage and use of hazardous chemicals shall be minimized to the extend possible and all necessary precautions shall be taken to mitigate the risk generated out of it. Storage of hazardous chemicals shall be in multiple small capacity tanks/containers instead of one single large capacity tank for safety purpose.	Complied
50	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. Close handling system for chemicals shall be provided.	Complied
51	Handling and charging of chemicals shall be done in closed manner by pumping or by vacuum transfer so that minimal human exposure occurs.	Complied
52	Tie up shall be done with nearby health care unit/doctor for seeking immediate medical attention in case of emergency.	Complied
53	Personal Protective Equipment shall be provided to workers and its usage shall be ensured and supervised.	Complied
54	First aid box and required antidotes for the chemicals used in the unit shall be made readily available in adequate quantity.	Complied
55	Training shall be given to all workers on safety and health aspects of handling chemicals.	Complied
56	Occupational health surveillance of the workers shall be done and records shall be maintained. Pre-employment and periodical medical examination for all workers shall be undertaken as	Complied

	per Factories Act & Rules	
57	Transportation of hazardous chemicals shall be done as per the provisions of Motor Vehicle Act and Rules	Complied
58	The company shall implement all preventive and mitigation measures suggested in the risk assessment report	Complied

A-5 NOISE

Sr. No.	Specific Conditions	Concern department
59	<p>To minimize the noise pollution the following noise control measures shall be implemented :</p> <ul style="list-style-type: none"> ● Selection of any new plant equipment shall be made with specifications of low noise levels ● Manufacturers/suppliers of major noise generating machines / equipments like air compressors, feeder pumps, turbine generators etc. shall be instructed to make required design modifications wherever possible before supply and installation to mitigate the noise generation and to comply with national/international regulatory norms with respect to noise generation for individual units ● Regular maintenance of machinery and vehicles shall be undertaken to reduce noise impact ● Noise suppression measures such as enclosures, buffers and /or protective measures shall be provided ● Employees shall be provided with ear protection measures like ear muff or ear plug. ● Proper oiling, lubrications and preventive maintenance shall be carried out of the machineries and equipments to reduce noise generation ● Construction equipments generating minimum noise and vibration shall be chosen. ● Ear plugs and muffs shall be made compulsory for the construction workers working near the noise generating activities/machines /equipments ● Vehicles and construction equipment with internal combustion engines without proper silencer shall not be allowed to operate ● Construction equipment meeting the norms specified by EP act 1986 shall be used ● Noise control equipment and baffling shall be employed on generators especially when they are 	<p>We have taken preventive measures to reduce noise generation wherever possible. Regular preventive maintenance of all the equipment's/machineries is carried out. We have provided ear plugs and ear muffs wherever required. We meet with the norms of noise level carried out by schedule 1 auditor. Complied.</p>

	operated near the residential and sensitive areas. <ul style="list-style-type: none"> Noise levels shall be reduced by the use of adequate mufflers on all motorized equipment. 	
60	The overall noise level in and around the plant area shall be well within the prescribed standards by providing noise control measures including acoustic insulation, hoods, silencers, enclosures vibration dampers etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act and Rules. Workplace noise levels for workers shall be as per the Factories Act and Rules.	The ambient noise levels confirms to the Environment (Protection) Act and Rules. Complied

A-6 ENERGY CONSERVATION

Sr. No.	Specific Conditions	Concern department
61	The project proponent shall install energy efficient devices and appliances conforming to the Bureau of Energy Efficiency norms	Complied
62	The energy audit shall be conducted at regular intervals and recommendations of the audit report shall be implemented	Energy audit is conducted at regular intervals. Complied
63	The project proponent shall implement the application of solar energy which shall be utilized as solar lighting for illumination of common areas, lighting of internal roads and passages in addition to utilisation of solar water heating systems	We have installed 35 MW solar power plant. Additional we have also installed roof top solar system. Complied.
64	The transformers and motors shall have minimum efficiency of 85 %.	Complied
65	Variable frequency drives shall be installed	Complied. We have installed VFD in many types of equipment to conserve power.
66	Energy conservation measures shall include use of electronic lighting system, use of CFL tubes to minimize energy use, use of programmable times for pumping system and lighting, water level controllers for water pumps, centralized cooling etc.	Complied. We have installed CFL tubes, centralized cooling, electronic ballast, and installed VFDs etc to save energy.
67	Energy saving practices as follows shall be practiced : <ul style="list-style-type: none"> Constant monitoring of energy consumption and defining targets for energy conservation Adjusting the settings and illumination levels to 	Complied. Following are out energy saving practices : <ul style="list-style-type: none"> Constant monitoring of energy consumption. Adjusting the settings of

	<p>ensure minimum energy used for desired comfort level</p> <ul style="list-style-type: none"> ● Use of solar cells for lighting ● Use of solar water heater for canteen and washing area ● Proper load factor shall be maintained ● Provision of day light roof to maximize natural light in the production plant instead of electrical lighting ● Use of electronic ballast to save energy ● Automatic switching system for lighting and water tank pumping shall be used. ● To the maximum extent possible and technically feasible, energy efficient motors, pumps, air conditioning systems shall be selected. ● Gravity flow shall be preferred wherever possible to save pumping energy. <p>Promoting awareness on energy conservation</p> <ul style="list-style-type: none"> ● Training to the staff on methods of energy conservation and to be vigilant for this 	<p>illumination</p> <ul style="list-style-type: none"> ● Use of solar cells for lighting ● Proper load factor is maintained ● Use of electronic ballast ● Energy efficient equipment like motors ● Training to employees etc.
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A-6 CLEANER PRODUCTION AND WASTE MINIMISATION

Sr. No.	Specific Conditions	Concern department
68	<p>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 GPCB</p>	<p>Complied. Cleaner production study was carried out in 2012. We have implemented Cleaner production measure like installation of 171 MW wind farms, 35 MW solar power plants, energy efficiency, replacement of raw salt with washed salt etc.</p>
69	<p>The company shall undertake following waste minimization measures :</p> <ul style="list-style-type: none"> ● Metering and control of quantities of active ingredients to minimize waste ● Reuse of byproducts from the process as raw materials or raw materials substitutes in other process ● Use of automated and enclosed filling to minimize spillages ● Use of close feed system into batch reactors ● dry cleaning /mopping of floor instead of floor washing ● Use of high pressure hoses for cleaning to reduce wastewater generation ● Regular preventive maintenance for avoiding leakage, spillage etc. 	<p>Complied</p>

A-7 GREEN BELT AND OTHER PLANTATION

Sr. No.	Specific Conditions	Concern department
70	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.	We have greenbelt area of 38 %. Complied.
71	Drip irrigation /low volume, low angle sprinkler system shall be used for green belt development within premises.	Water sprinkler system implemented. Complied

B. GENERAL CONDITIONS

72	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 the control equipment has been achieved.	Noted
73	All the recommendations, mitigation measures, environmental protection measures and safeguards proposed in the EIA report of the project prepared by M/s San Envirotech Pvt. Ltd. And submitted vide letter no. Nil dtd. 07.07.2015 and commitments made during presentation before SEAC, proposed in the EIA report shall be strictly adhered to in letter and spirit.	Complied
74	A separate Environment management cell equipped with full fledged laboratory facilities and qualified personnel shall be set up to carry out Environment management and monitoring functions and a separate budget shall be allocated for this purpose	Company has recruited 2 environment engineers and have well equipped laboratory for environment monitoring. Complied
75	The company shall strictly follow all the recommendations mentioned the charter on corporate responsibility for Environment Protection (CREP) published by CPCB as may be applicable	Complied
76	The funds earmarked for environmental protection measures shall be maintained in a separate account and there shall not be any diversion of these funds for any other purpose. A year wise expenditure on environmental safeguards shall be reported	Complied. The funds provided for environmental protection/monitoring and expenditure is reported to GPCB in environment audit report.
77	The project authorities shall also adhere to the stipulations made by the Gujarat Pollution Control Board, state government and any statutory authority.	Complied
78	During material transfer, spillage shall be avoided and garland drain shall be constructed to avoid mixing of accidental spillages with domestic	Complied

	wastewater or storm water	
79	Pucca flooring/impervious layer shall be provided in the work areas, chemicals storage areas and chemical handling areas to minimize soil contamination.	Complied
80	Leakages from pumps, pipes shall be minimal and if occurs shall be arrested promptly.	Complied
81	No further expansions or modifications in the plant likely to cause environmental impacts shall be carried out without obtaining prior environment clearance from the concerned authority.	Noted
82	The above conditions shall 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 Wastes (Management Handling and Transboundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 alongwith their amendments and rules.	Complied
83	The project proponent shall comply all the conditions mentioned in "The companies (CSR policy) rules 2014 and its amendments from time to time in a letter and spirit	Complied
84	The project authorities shall earmark adequate funds to implement the conditions stipulated by SEIAA or GPCB along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	Complied
85	The applicant shall inform the public that the project has been accorded environmental clearance by the SEIAA and the copies of the clearance letter are available with GPCB and may also be send at website of SEIAA/SEAC/GPCB. This shall be advertised within seven days from the date of clearance letter, in at least two local news paper that are widely circulated in the region one of which shall be in Gujarati language and other in English. A copy each of the same shall be forwarded to the concerned regional office of the ministry.	Complied
86	The applicant shall also comply with any additional condition that may be imposed by SEAC or SEIAA or any other competent authority for the purpose of environmental protection and management	Noted
87	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 authority concerned, on 1 st June and 1 st	Complied

	December of each calendar year.	
88	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment Act 1986.	Noted
89	The project authorities shall also adhere to the stipulations made by the Gujarat Pollution Control Board.	Complied
90	The SEIAA may revoke or suspend the clearance, if implementation of any of the above conditions is not found satisfactory.	Noted
91	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
92	The project authorities shall inform the GPCB, Regional Office of MoEF and SEIAA about the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Complied
93	This environmental clearance is valid for seven years from the date of issue	Noted
94	Any appeal against this environmental clearance shall lie with the national green tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the national green tribunal act 2010.	Noted