

B-Direction/Ceramic-Morbi/2017

June 16, 2017

To,

**The Chairman**  
**Gujarat Pollution Control Board**  
Sector 10-A, Gandhi Nagar - 382 010  
Gujarat

**SUB: Direction under Section 18 (1) (b) of the Water (Prevention and Control of Pollution) Act, 1974 & the Air (Prevention and Control of Pollution) Act, 1981 in the matter of Ceramic Industry at Morbi and Wakaner, Dist. Rajkot of Gujarat**

WHEREAS under Section 17 of the Water (Prevention & Control of Pollution) Act, 1974, one of the functions of the Gujarat Pollution Control Board, constituted under Water (Prevention and Control of Pollution) Act, 1974 is to plan a comprehensive programme for the Prevention, Control or Abatement of Water Pollution in the State of Gujarat and to secure the execution thereof:

WHEREAS under Section 17 of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the Gujarat Pollution Control Board, constituted under Water (Prevention and Control of Pollution) Act, 1974 is to plan a comprehensive programme for the Prevention, Control or Abatement of Air Pollution in the State of Gujarat and to secure the execution thereof:

WHEREAS a team of officers of Central Pollution Control Board, Zonal Office, Vadodara inspected 13 Ceramic Industries at Morbi and Wankaner Dist. Rajkot of Gujarat during 18<sup>th</sup> -20<sup>th</sup> July, 2012 out of which 10 had installed gasifier. The inspecting team observed that :

1. 77 units have installed in Morbi and Wakaner Dist., Rajkot of Gujarat without adopting proper pollution control system and in violation of consent condition imposed by Gujarat Pollution Control Board.
2. The coal gasification technology adopted by these units is outdated and the environmental pollution control measures inadequate, therefore, there is possibilities of water, land and air contamination due to operation of these gasifiers.
3. Cleaning of crude coal gas using wet scrubbing generates large quantity of tar in the effluent besides the fugitive emissions.
4. Brownish colour water was observed in the gas sealing water tank of the visited units. The analysis of composite samples collected indicates that the gas cleaning system in the gasifier is not efficient as COD 152 mg/l and phenol 2.46 mg/l with trace of cyanide 0.06 mg/l was found. Such contaminated waste water if not managed properly has all the potential to contaminate the surrounding soil and water.
5. In all the inspected units, scrubbed effluent after tar settling was over flowing inside the plant premises on barren land, a potential source of contamination of soil and ground water. It was also observed that this effluent is discharged in storm water / drain canal.
6. Foul smell and leakages were observed from gasifiers and overall working condition was very poor.
7. The coal tar generated is informally sold to unauthorized stake holders who in turn sell it to the silicate industries and to other users. The tar is transported in poorly maintained tractor trolley leading to spillages during the transportation.

8. Solid waste from cutting and polishing of tiles is dumped haphazardly along the National Highway, Ghuntu Village, Lakdhirpur, Lalpur etc, and low lying areas in the industrial cluster.
9. Most of the units have spray dryer which uses hot air generated by the air heater / boiler. Cyclone and scrubber are provided as Air Pollution Control Devices (APCD) before the exhaust. However the performance of the same was not effective thereby, resulting in particulate matter emission, as visually observed through stack.
10. Monitoring of stack emission could not be conducted as monitoring provision does not exist in any of the visited units.
11. The housekeeping was unsatisfactory in all the inspected units as evident from water logging, improper solid waste stacking and lack of proper approach roads within the premises.
12. Poor green belt development is observed in the units and around the industrial cluster.

WHEREAS, Central Pollution Control Board (CPCB) issued directions to the Gujarat State Pollution Control Board (GPCB) on 23.08.2012 (vide no. B-direction/ceramic-morbi/2012/2781) which directed GPCB to comply with following directions:

1. The gasifiers installed by the units should be stopped immediately and dismantled, so as to comply with consent condition issued by the Gujarat Pollution Control Board in the entire Morbi-Wakaner industrial cluster and further erection of any unauthorized gasifier shall not be permitted.
2. The unit should switch over to LNG as fuel with immediate effect.
3. The accumulated scrubbed water (Brownish Wastewater) from the units should be disposed in environmentally sound manner i.e. sending to incinerator along with other contaminated materials.
4. The silicate industries in these cluster should be directed to immediately stop use of coal tar as fuel in their kiln.
5. The APCDs like scrubber of spray dryer, cyclone etc. installed should be properly operated or upgraded with high efficiency particulate matter control system, such as bag filter or any other control devices.
6. Stack of adequate height and with proper monitoring facility should be provided in the kiln and spray dryer.
7. Solid Waste should be properly disposed in a secured landfill site to avoid haphazard disposal.
8. Housekeeping inside the premises should be improved especially in the raw material handling area.
9. Green belt development around the industrial cluster and in the individual unit should be initiated.
10. The unit shall submit an action plan to comply with the direction listed above along with Bank Guarantee of suitable amount to the satisfaction of Gujarat State Pollution Control Board.

WHEREAS a meeting was held with GPCB on 03.02.2014 and it was agreed that only in selected industries (not exceeding 5), five type of gasifiers with different technologies can be tried out on demonstration basis and only after getting the performance report by CPCB, further course of action will be decided.

WHEREAS, GPCB after execution of study forwarded the report on Coal based gasifer for theoretical and practical evaluation of technology proposals for Zero percentage pollution discharge prepared by the Expert Committee constituted by Forests & Environment Department, Government of Gujarat to CPCB on 12.05.2014 (vide no. GPCB/RJ/C-20(3)/2013).

WHEREAS CPCB constituted an Internal Committee of its officers to examine the report prepared by the Expert Committee of Gujarat Government. Officers of CPCB having studied the

report have observed that, as per the report "Zero Percentage Pollution Discharge" from gasifiers is difficult to achieve. However, the report has recommended certain measures to be taken on short, medium and long-term basis to contain pollution from gasifiers.

WHEREAS a meeting was convened with GSPCB on 20.06.2014 to ascertain the details and the background as well as the way forward in the matter, wherein some new facts and interpretations of CPCB's earlier direction dated 23.08.2012 have come to the notice. It has been gathered in the meeting that the understanding of GPCB in the matter is essentially to the effect that even if they want to modify the consent conditions and permit gasifiers to be used for a limited period after installing pollution control devices as per the recommendation of the Expert Committee appointed by Government of Gujarat, they do not have the freedom to do so unless CPCB directions dated 23.08.2012 quoted above are amended. Their request therefore is that if CPCB permits them to modify the consent conditions for a limited period on pilot basis they will do so and simultaneously ensure that no pollution is caused in the Morbi-Wakaner area due to the ceramic units because they feel confident that the additional measures suggested by the Expert Committee are adequate. The minutes of this meeting were referred to the internal committee of CPCB for their further examination and recommendation because of emergence of some new facts and interpretation of CPCB directions 23.08.2012. Revised observations and recommendations of the internal committee of CPCB have been received.

WHEREAS, Central Pollution Control Board (CPCB) modified its directions dated 23.08.2012 and issued revised directions dated 21.6.2014 vide No.B-direction/ceramic-morbi/2012/2901 - 03 which directed GPCB to comply with following directions:

1. If GPCB feels satisfied and confident that the ceramic units of Morbi-Wakaner industrial cluster will install all necessary equipments in gasifiers as recommended by the Expert Committee of Government of Gujarat and ensure zero pollution, they are permitted to modify the conditions in their consent order suitably for a period of one year. Direction no. 1 issued earlier on 23.08.2012 in respect of stoppage and dismantling of gasifiers will stand suspended in this period of one year.
2. Direction No. 2 & 3 issued earlier on 23.08.2012 about the units having to switch over to LNG as fuel with immediate effect will also stand suspended in this period of one year.
3. GPCB shall constitute committee to oversee the progress of implementation of recommendations contained in the report of Gujarat Government. A time table shall drawn for implementation of recommendations and quarterly progress report will be forwarded to CPCB.
4. GPCB shall set-up a vigilance squad to inspect gasifiers regularly and ensure that no mishaps occur due to leakage of CO to safeguard the worker's health and avert any incidences of fire / explosion due to Hydrogen gas.
5. GPCB shall keep vigilance on public complaints and these should be duly addressed. There shall be special arrangement to see that no life is affected due to disposal of liquid effluents of gaseous emissions.
6. GPCB shall set-up continuous ambient air quality monitoring stations / stations as per requirement to monitor ambient air quality of the region.
7. That if CPCB is at any time of the view that progress and implementation is at slow pace and situation of gasifiers is causing pollution, it shall withdraw the current direction and re-impose the earlier direction dated 23.08.2012.

8. CPCB shall review the status of implementation of the direction for a period of one year.

WHEREAS, CPCB has inspected the Morbi-Wakaner area during 22-25 June, 2015 to review the compliance status of modified directions dated 21.6.2014 after completion of one year. The inspecting team made following observations related to non-compliance of direction dated 21.6.2014.

1. GPCB has constituted a committee in compliance of condition No. 3 of said direction to monitor the progress of implementation of recommendation contained in the report of Gujarat Government and to submit quarterly progress, but committee never submitted any action plan to CPCB for compliance to our modified direction. It appears that it is a non functional Committee.
2. GPCB are ignoring the compliance of safety measures and granted consent to operate to the 31 Ceramic Units without any certificate / permission of Director of Industrial Safety & Health (DISH) for safety measures as per recommendation of Expert committee.
3. Some of gasifiers are located on such a place in the premises units, where factory workers are living with families very close to gasifiers and their child are allow to play & sleep well within the gasifier installation. It is a very dangerous to health hazard to them due to exposure to CO leakage or explosion etc.
4. Even after completion of one year time given in said direction, GPCB are not able to set up even 01 Real Time Continuous Ambient Air Quality monitoring station in the region. Where more than 450 Ceramic Units are operating along with 450 spray dryers as part of process and emitting huge quantity of dust (SPM & PM10) from the stacks of spray dryers. It was observed that entire region of Morbi-Wakaner submersed into very high SPM & PM10 levels during morning & evening time. (We have done Photography & Videography for entire region).
5. Facility like monitoring hole & platform has not been provided by any of Ceramic unit for stack monitoring of spray dryer and stack and kiln stacks.
6. All Ceramic units are dumping their solid waste (very fine powder & broken tiles) on the open land & road sides here and there in entire region of Morbi-Wakaner, which contribute to further increase in SPM level in the atmosphere. (We have done Photography & Videography for entire region).
7. There is no defined function/mandate for the Committee constituted by the GPCB in compliance of condition no. 3 and was responsible to look after the compliance of our direction dated 21st June, 2015. Therefore, there is need for strengthening and more functional of this Committee.
8. The coal handling system in modified gasifier was found to be inadequate w.r.t. coal storage and bucket elevator system is not covered properly.
9. A piping arrangement with flange is provided to feed steam (containing VOCs) from evaporator to gasifier. This steam can also be vented into atmosphere. Flue gas stack/scrubber attached to evaporator is observed to be inadequate.
10. The modified gasifier system are provided SCADA but badly managed by the ceramic units without having skilled man-power to operate the entire installation of gasifier.

11. Most of modified gasifiers are having provision of venting at the top of gasifier shell and associated scrubbing system was found to be inadequate.
12. There is no provision to disposed off hazardous tarry waste in secure land fill site because only 10-20% hazardous tarry waste are being utilized as a fuel by the approximately 15 authorized sodium silicate and frit units.

WHEREAS, based upon the non-compliance of direction dated 21.6.2014 reported by the team of inspecting officers of Central Pollution Control Board and after reviewing overall situation and observing that no significant progress has been made for implementation of the recommendation of Expert Committee of Government of Gujarat, CPCB vide its letter dated **14th August, 2015** to GPCB, sought on status **“Why CPCB should not re-impose its direction dated 23.08.2012 and withdraw the direction issued by it on 21.6.2014”**.

WHEREAS, in reference to representation of Gujarat Silicate Manufacturing Associations, CPCB, Z.O.Vadodara, carried out the monitoring of the identified Drains/Rivers and Water Bodies of 10 identified locations. The observations and findings of the inspection and monitoring was as follows:

1. Substantial quantity of water available in ponds river due to monsoon.
2. Drain water is cumulative indicators of gasifiers related wastewater, domestic discharge and other ceramic unit discharge.
3. The color of the water was found brownish in drains/low-lying areas and rivers indicates the sporadic discharge of wastewater from ceramic industries.
4. The team did not found any dumping of tarry waste at any place.
5. Out of 5 locations of rivers and ponds, the DO level was 6.5mg/l except in 01 location i.e kalindri river at downstream of ceramic cluster where it was 2.3 mg/l.
6. BOD level is exceeding the level of 3.0mg/l at almost all location except 01 location i.e kalindri river near Sona Ceramic (Upstream for Old Ghuntu Road Ceramic Cluster/area).
7. The presence of Cyanide and Phenols indicates the wastewater discharged from gasifiers units outside the industrial premises in land and in natural stream/drains.
8. The cadmium and lead found below delectation limit in all samples whereas mercury found in 03 samples which apparently indicated water discharge from coal related processes.
9. The concentration of COD found very high as 3755 mg/l at 01 location i.e underground pipeline discharge behind Dunex Ceramic in Bela River.
10. At the same location i.e underground pipeline discharge behind Dunex Ceramic in Bela River the value of TOC found as 1125.38 mg/l.
11. VOC concentration found only in 02 samples i.e 36.26 µg/l in Drain along boundry wall of Sanvis Ceramic in Rangpur and 15.26 µg/l in wastewater earthen lagoon near Sadbhav Ceramic in Nava Dhuva Village.
12. PAH found in all samples, the highest value found as 4924.5 µg/l in underground pipeline discharge behind Dunex ceramic in Bela River, it may be said that drains and waterbodies contaminated with PAH apparently because of pyrolytic source.

WHEREAS based on the observations and findings, CPCB vide its letter dated December 07, 2016 and April 03, 2017 requested Gujarat Pollution Control Board to take necessary action against the defaulting ceramic units operating with coal gasifier in Morbi & Wankaner Area and complied with our modified direction dated 21.06.2014.

WHEREAS no action has taken by the GPCB on the observations and findings of the "Report on Monitoring of Water Bodies in Morbi-Wankaner Area- Ceramic Industrial Area, Gujarat" modified direction dated 21.06.2014 also no found satisfactory.

NOW, therefore, in exercise of powers conferred under Section 18 (1) (b) of the Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act, 1974, the following direction are issued to Gujarat Pollution Control Board for further necessary actions.

1. Take necessary action on the observations and findings of the "Report on Monitoring of Water Bodies in Morbi-Wankaner Area- Ceramic Industrial Area, Gujarat".
2. Take necessary action against the defaulting units using coal gasifier and not complied with the consent conditions.
3. Provide the copies of Consent to Operate issued by the GPCB to all the Ceramic units as-on-date after modified direction dated 21.06.2014.
4. Provide the list of Ceramic unit those are operating on Zero Potential Technology coal gasifier and not generating Hazardous Solid Waste known as Tarry Waste and Toxic liquid Waste.
5. Provide comprehensive study on the request of Gujarat Government as directed in the modified direction dated 21.06.2014 at point no. 3.

The Action taken report shall be submitted to the Central Pollution Control Board within 30 days from the date of receipt of these directions failing which CPCB may re-impose its direction of 23.08.2012.



(S.P. Singh Parihar)  
Chairman

**Copy to:**

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3. **1/C IT, CPCB**



(A.B. Akolkar)  
Member Secretary