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To,

~~The Chairman  
Gujarat Pollution Control Board  
Sector 10-A  
Gandhi Nagar – 382 043, Gujarat~~

**DIRECTION UNDER SECTION 18(1) (b) OF THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT, 1981 IN THE MATTER RELATED TO QUARTZ GRINDING UNITS, GODHRA, GUJARAT**

**WHEREAS**, amongst others, under Section 17 of the Air (Prevention and Control of Pollution) Act, 1974, one of the functions of the Gujarat State Pollution Control Board (SPCB) is to plan a comprehensive programme for prevention, control or abatement of air pollution in Gujarat and to secure the execution thereof; and

**WHEREAS**, CPCB on the request from the Madhya Pradesh State Pollution Control Board regarding complaint relating to Silicosis in Gujarat constituted a Committee comprising members from Industrial Toxicology Research Centre (ITRC), Lucknow; Gujarat State Pollution Control Board, Godhra; Madhya Pradesh Pollution Control Board, Bhopal; Ministry of Environment and Forests, Regional Office, Bhopal; Industrial Safety and Health, Vadodara; CPCB, Zonal Office, Bhopal & Vadodara; CPCB, Delhi, and official from Gujarat Govt. on 24<sup>th</sup> January, 2006 under the Chairmanship of the Director, National Institute of Occupational Health (NIOH), Ahmedabad.

**WHEREAS**, the Committee made a visit to the Quartz Industries in Godhra region of Gujarat on 19.04.2006 and prepared a report on "Spreading of Silicosis and Pneumoconiosis Disease Due To Pollution From Quartz Industries Located In Godhra, Gujarat." In the Report of the Committee recommendations have been made for controlling the emissions and safeguarding the health of the workers working in the Quartz industries located in Godhra, Gujarat.

**WHEREAS**, the recommendations contained in the Report of the Committee are reproduced here under:-

- The Air Pollution Control Devices should be upgraded / installed at all the dust generating sections such as quartz stone unloading, crushing, material conveying, grinding, grading and packing (Feasibility of a model facility with appropriate Air Pollution Control System may be explored).
- The State Govt. may conduct detailed medical examination of all industrial workers of quartz industries in Godhra for occupational health diseases through a reputed organization like NIOH.
- The layout of the plant should be redesigned so that direct exposure of the workers to the silica dust is reduced.

- The dust collected in the hoppers of air pollution control devices is very fine generally less than 100 micron size, which needs to be handled very carefully to avoid its resuspension. During filling of the bags, dust should not get air borne. The finer dust may be dumped in the abandoned mine area and covered with a thin layer of soil.
  - The stack height should be at least 2 m above roof level for proper dispersion of pollutants in the atmosphere.
  - Fugitive emissions generated from unloading of quartz stone, crushing may be channelised through hood with proper suction arrangement connected to bag filter and stack.
  - Leakages of dust from machines and ducts should be plugged.
  - During unloading of the material, the drop height should be controlled by telescopic chutes to reduce the Fugitive emissions.
  - Wind breaking wall should be provided to prevent spreading of the dust.
  - Floor should be regularly cleaned by a dustless method such as vacuuming or wetting down. Dry sweeping should be avoided.
  - Housekeeping has lot of scope for improvement
  - Stack, ambient air quality and work zone monitoring (for silica dust) should be carried out by the industry on regular basis and data should be submitted to Regulatory Authorities.
  - All workers and employees should be provided photo identity card
  - Employer should maintain a register having the name and address of all the workers and employees along with date of joining etc. and with photograph
  - Employer should maintain a register for daily attendance of all workers and employees
  - All the workers should be provided with medical surveillance by the employer. Medical surveillance programme should consist of the following
    - Pre – employment medical surveillance
    - Periodic medical examination
    - Medical examination at cessation of employment
    - Maintenance of medical records and
    - Health education
- Proper medical examination record of all the workers should be maintained.
- Workers should be given education about the risk associated with silica dust exposure, potential health effects, etc.
  - Workers should wear good quality mask while working in the plant.
  - Display board should be provided showing the hazard associated with silica dust and preventive measures.
  - Quartz grinding units should obtain consent under the Air (Prevention & control of Pollution) Act, 1981 from the State Pollution Control Board.
  - A Questionnaire may be prepared by NIOH for epidemiological study of industrial workers, so that there is uniformity in all such studies be undertaken in future
  - For the quartz grinding industries located in other parts of the Country, the respective State Pollution Control Boards and concerned State Govt. departments may collect the details of such industries and ensure the implementation of recommendations of this Committee including undertaking of health based studies of the workers exposed in these industries. Organizations like NIOH, ITRC etc having expertise in taking such assignment may be considered for the task.



**WHEREAS**, the CPCB on 11.09.2006 sent the recommendations of the Committee to Gujarat State Pollution Control Boards for its implementation.

**WHEREAS**, in the matter of Writ Petition No.110 of 2006 of Hon'ble Supreme Court, Central Pollution Control Board (CPCB) carried out inspection cum monitoring in quartz processing units located in Godhra area in Panchmahal District during 01.06.2016 to 04.06.2016. The task has been completed in association with Regional Office, Godhra of Gujarat Pollution Control Board (GPCB).

**WHEREAS**, The point wise compliance observed by the team on the suggestions made in the Report of the Committee (of 2006) on spreading of Silicosis and Pneumoconiosis Disease due to pollution from Quartz Industries located in Godhra, Gujarat is given below:

- i. All the 16 operational quartz grinding units inspected during June 1-4, 2016 have provided Air Pollution Control Device (APCD) that is, cyclone followed by bag filter or bag filter at crushing, grinding and grading for control of fugitive emissions. However, the fugitive emission control measures taken including APCD is inadequate.

The fugitive emission monitoring was conducted in 16 operational quartz grinding units and the monitoring results of SPM measured between 3 to 10 metres from the process equipment ranged from 1049.62  $\mu\text{g}/\text{m}^3$  to 9500.01  $\mu\text{g}/\text{m}^3$  against the prescribed standard of 600  $\mu\text{g}/\text{m}^3$ . Fugitive emission for Suspended Particulate Matter (SPM) was found exceeding the norm in all 16 nos. of operational units.

The stack emission monitoring was conducted in 05 operational quartz grinding units and the monitoring results of PM ranged from 4.13  $\text{mg}/\text{Nm}^3$  to 138.2  $\text{mg}/\text{Nm}^3$  against the prescribed standard of 150  $\text{mg}/\text{Nm}^3$ . Source emissions found well within the prescribed limit from all the 06 stacks monitored in 05 operational units. As particulate matter also escapes in the form of fugitive emission, the stack emissions were found low.

- ii. As per the letter No. DIC/Silicosis-CPCB/2016 dated 3.6.2016 received from National Institute of Occupational Health (NIOH), Ahmedabad, the Institute has not conducted any studies / examinations of industrial workers in Godhra, either its own or in association with Govt. of Gujarat after 2006.
- iii. All the quartz units in Godhra have provided covered shed for all the process equipments.
- iv. The fine dust collected from APCDs as well as accumulated dust due to fugitive emissions during operation are collected by the units and stored in haphazard manner. The fine dust is mostly disposed by the units in low lying area. Few units have reported that fine dust is being used for manufacturing hollow bricks or other uses. Most of the units are not maintaining records pertaining to generation and disposal of such dust.
- v. The stack emission monitoring facility found to be inadequate in majority of the units. Moreover, the height of stack is not raised to minimum 2 meter above the roof level in most of the cases.
- vi. Leakages of dusts from machines and ducts were observed.

- vii. None of the units have provided telescopic chute system for the final product filling for dispatch however very few units have provided alternate arrangement such as jute cloth chutes for dispatch of products.
- viii. In order to contain fugitive emission, all the 16 inspected units have covered entire plant and machinery under shed made of GI sheets instead of providing wind breaking walls.
- ix. Systematic wetting of premises for suppression of dust is not practised by any of the 16 units. The units are using flexible hoses for application of water resulting over utilization of water and uneven application for the purpose. The units are not maintaining records of water utilization and at the same time bore-wells of the units are not provided with meters.
- x. House keeping with reference to dust management, is poor and needs to be improved in terms of regular upkeep.
- xi. Work zone monitoring for free crystalline silica is being carried out by the units with the help of private laboratory. However, stack and ambient air quality monitoring is not being carried out by the units.
- xii. All the workers are being provided photo identity card by the employer.
- xiii. All the Units are maintaining address record register, daily attendance register and medical examination record register. No record of medical examination is observed at the cessation of the employment. However, the authenticity of such record need to be checked by the concerned Health / Labour Department.
- xiv. Units have informed that they are giving the education to the workers about the risk associated with the silica dust through the local NGO.
- xv. Dust mask for protection from fine dust is provided to the workers by the units.
- xvi. Most of the units have prominently displayed board regarding the effect of silicosis inside the plant shed for awareness of workers.
- xvii. All the quartz grinding units have obtained Common Consent and Authorization (CCA) from Gujarat State Pollution Control Board.

**WHEREAS**, the status summary report and individual inspection reports of quartz grinding units are enclosed as Annexure I & II.

**It is evident from the above observations that all the 16 operational quartz grinding units are not complying with the fugitive emission standards.**

**NOW, therefore**, in exercise of the powers conferred under Section 18(1) (b) of the Air (Prevention and Control of Pollution) Act, 1981, the following directions are issued for compliance:

- 1 The Gujarat State Pollution Control Board shall direct the quartz grinding units located in Godhra under section 31 (A) of the Air (Prevention and Control of Pollution) Act, 1981 for compliance of the following directions to the satisfaction of GSPCB immediately:
  - i. Adequate provision of dust extraction system shall be made at potential sources such as jaw crusher hopper, transfer points of materials from conveyer belt, disintegrator, transfer points of materials from bucket elevators to other plant equipment, rotary screens, magnetic separators, vibratory screens etc. The dust extraction system of



- such potential sources shall be routed through Air Pollution Control Device (APCD). The quartz grinding units shall meet the stipulated norms for fugitive emission (suspended particulate matter) prescribed by GPCB.
- ii. APCDs provided by the units shall be maintained and operated properly. Stacks attached to APCDs are to be equipped with adequate monitoring facility as per CPCB Emission Regulation, Part-III.
  - iii. The height of stack shall be maintained minimum 2 meter above the roof level as prescribed by GPCB.
  - iv. Sheds provided for plant process machineries shall be closed properly and provision of Closed Circuit Television (CCTV) camera shall be made rather than keeping small openings in shed for frequent observations.
  - v. The internal roads shall be made of bitumen / concrete to reduce the fugitive emission by vehicular movement with proper cleaning and wetting mechanism.
  - vi. Provision of green belt shall be made along the periphery of the individual unit.
  - vii. Provision shall be made for systematic water sprinkling at places of dust generation to reduce the fugitive emission and records of water utilization shall be maintained.
  - viii. The telescopic chute / any other system shall be adopted to reduce the fugitive emission while loading the products into trucks / fine dust in the bags.
  - ix. Provision of Personal Protective Equipments (dust mask, helmet, safety shoes, goggles, ear plugs) and utilization by all the workers during operation of the plant shall be ensured.
  - x. Prominent display regarding the effect of silicosis inside the premises for awareness of workers and other concern shall be ensured.
  - xi. Units shall provide designated storage for dust collected from APCDs and fugitive emissions. The dust shall be disposed in the manner prescribed by GPCB. The records of dust disposal shall be maintained. The unit shall remove the collected dust at regular interval.
  - xii. The units shall ensure environmental monitoring and submission of reports to GPCB at regular intervals.
  - xiii. The units shall also ensure the compliance of provisions of aspects related with health, safety and labour laws enforced by concerned Govt. agencies.
  - xiv. The house keeping shall be improved.
  - xv. Each industry under the supervision of State Authority shall have X-ray scan with other supporting clinical tests of each worker of the industry on monthly / bi-monthly basis or as per the Health Requirement Protocols.
  - xvi. The Units shall submit a time bound action plan to comply with the above measures, within 30 days.
2. The GSPCB shall redesign the Common Consent & Authorisation with uniform conditions and parameters for all the units considering similarities in processes.
  3. The Gujarat State Pollution Control Board shall constitute a committee with members from Department of Industrial Safety and Health, Department of Labour and Employment, National Institute of Occupational Health, Local Civil Hospital, Gujarat SPCB, CPCB and other concerned departments to ensure the health of the industrial workers engaged in quartz grinding and related industries and control the spreading of silicosis and

pneumoconiosis as well as monitoring stack emission and fugitive emission. The Committee shall meet quarterly and submit the progress report to Govt. of Gujarat and concerned Departments.

4. The Gujarat State Pollution Control Board with Industry Department shall set up continuous ambient air quality monitoring station at Godhra and other quartz processing industries clusters to monitor PM1 & PM2.5 and report the data in local newspapers.
5. The Gujarat State Pollution Control Board shall also issue the similar directions to the quartz processing units located in other parts of the Gujarat like Balasinor etc, to comply the directions as stated above.
6. The action taken report shall be sent by GSPCB to the CPCB within 30 days from the date of receipt of these directions. GSPCB shall also acknowledge the receipt of these directions to CPCB within 15 days from the date of the receipt.

  
(A. B. Mehta)  
Chairman

**Copy to:**

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- 3) ✓ The Incharge, IT Division, CPCB

  
(A. B. Akolkar)  
Member Secretary

