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MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
NOTIFICATION

New Delhi, theApril, 2015

G.S.R. S.O. The following draft of the rule, which the Central Government proposes to issue in exercise of the powers conferred by section 3, section 6 and subsection (2) of section 25 of the Environment (Protection) Act, 1986 to substitute rule 6 of the Environment (Protection) Rules, 1986 is hereby published, as required under sub rule (3) and subrule (4) of the rule 5 of the Environment (Protection) Rules, 1986 for the information of industry, associations of industries and public likely to be affected thereby.

1. Whereas, it is necessary to conserve and protect the environment from the uncontrolled emissions/ effluent discharges from industries, common effluent treatment plants, sewage treatment plants, common bio-medical treatment facilities, common hazardous waste treatment facilities, municipal solid waste handling facilities, etc.;
2. And, whereas with the rapid industrialization, it is not possible to ensure the compliance of environmental norms at all point sources for their quality of air emissions or effluent discharges with the manual monitoring methods.
3. And, whereas Central Pollution Control Board has identified 17 categories of highly polluting industries for priority action.
4. And, whereas with the advent of systems for real time monitoring of emissions/ effluent discharges, the 17 category of highly polluting industries, the common treatment facilities including, common effluent treatment plants, common bio-medical treatment facilities, common hazardous waste treatment facilities, municipal solid waste handling facilities, and the industries directed by SPCBs/PCCs and CPCB need to install real time emission and effluent monitoring systems essential for strengthening the monitoring and compliance mechanism.

Draft Notification

- 1 (i) These rules may be called the Environment (Protection) Amendment Rules, 2015.
- (ii) They shall come into force on the date of their final publication in the official Gazette.
- 2 In the Environment (Protection) Rules, 1986, for rule 6, the following rule shall be substituted, namely:-

“6: Procedure for Taking Samples

(1) Manual Sampling: The Central Government or the officer empowered to take samples under section 11 shall collect the sample in sufficient quantity to be divided into two uniform parts, wherever possible, and effectively seal and suitably mark the same and permit to the person from whom the sample is taken to add his own seal or mark to all or any of the portions so sealed and marked. In case, where the sample is made up in containers or small volumes and is likely to deteriorate or be otherwise damaged if exposed, the Central Government or the officer empowered shall take two of the said samples without opening the containers and suitably seal and mark the same. The Central Government or the officer empowered shall dispose of the samples so collected as follows:

- (i) One portion shall be handed over to the person from whom he sample is taken under acknowledgement: and
- (ii) The other portion shall be sent forthwith to the environmental laboratory or analysts.

(2) Real time monitoring of emissions/ effluent discharges: The 17 categories of highly polluting industries and the common treatment facilities including Common Effluent Treatment Plants, Common Bio-Medical Waste Treatment Facilities, Common Hazardous Waste Treatment Facilities, Municipal Solid Waste Handling Facilities, etc. and industries directed to install real time monitoring system shall adopt the following protocol on “Real Time Monitoring of Emissions/ discharges” for ensuring data reliability and accuracy and providing link

for data sharing with concerned State Pollution Control Boards/ Pollution Control Committees and Central Pollution Control Board. In case of violation of norms, the Central Government or the officers empowered by it shall take note as specified in the protocol.

(I) Protocol for Real Time Monitoring of Emissions/ Effluent Discharges

(A) Recommended Instrumentation/Methodology for Monitoring

- (i) Standard Laboratory Methods/Procedures, approved/recommendeded by American Public Health Association (APHA), American Petroleum Institute (API), Deutsche Institute fur Normung(DIN)., European Union Standards (EN), International Organisation for Standardisation (ISO Standards), USEPA and Bureau of Indian Standards (BIS) shall only be used for sampling analysis, while USEPA approved and TUV & MCERTS certified analysers alone are recognised for monitoringby CPCB.
- (ii) Indigenous manufacturer of sensors/analysers/ instruments for real time monitoring of industrial emissions /discharges and not possessing certification from certification agencies such as USEPA, TUV, or MCERTS shall have to demonstrate the performance of their sensors/ instruments/analysers /methods to National Physical Laboratory (NPL), New Delhi, till such time the certification system is established.
- (iii) The performance demonstration shall extend over a one month period.The entire expenditure for conducting performance demonstration shall be borne by the manufacturer of the system/instrumentation.
- (iv) All Manufacturers of Indigenous sensors/analysers/ instruments for real time monitoring of industrial emissions /discharges shall obtain certificate for their system within six months after the Indian certification system is in place.

- (v) Each indigenous manufacturer shall subject its product range to the verification for Conformity of Production (COP), every year. For this, the year shall mean the period from 01, April of a calendar year to 31st March of the succeeding calendar year.
- (vi) National physical laboratory, New Delhi shall be responsible for COP.
- (vii) If the COP verification report indicates non-compliance the manufacturer must stop the manufacturing immediately.
- (viii) The testing shall be done as per the procedure and specification laid down by CPCB.
- (ix) The indigenously manufactured sensors/analysers/ instruments will not be considered for installation, in case their manufacturer fails to obtain the required certification from the Indian Certification Agency/ agencies.

(B) Calibration

a. Air Analyser

Gaseous Parameter

- (i) The instruments/analysers for real time monitoring of gaseous emissions shall be calibrated with respect to their functioning, drift, linearity detection limit, output, operating temperature and other relevant parameters before installing.
- (ii) After six months of operation, the system shall be rechecked for its health and data accuracy and reliability, following multi point calibration (at least 03 span concentrations) using standard methods and certified reference materials.
- (iii) The data comparison and calibration verification shall be done on quarterly basis by empanelled laboratories following standard procedures and using certified reference standards.
- (iv) The instruments/analysers shall be rechecked for zero and span drift every Friday at fixed time (10.00 a.m.) using standard methods and standard reference materials.

- (v) The health of the instruments/analysers shall be assessed on daily basis at fixed time (10.00 a.m.) by checking the zero drift.
- (vi) For Differential Optical Absorption Spectroscopy (DOAS), Non Dispersive Ultra Violet (NDUV)/Non Dispersive Infra Red lamp based systems, the calibration shall be revalidated once in 03 months, and after replacement of lamps.
- (vii) The values of ND UV/ND IR based system (folded beam-in-situ) will be compared with the standard methods using Standard Reference Material every Friday at fixed time (10.00 am) and Zero drift checked daily at fixed time (10.00 am).
- (viii) In case the daily zero drift is more than the acceptable limit as specified in the catalogue/brochure of the instrument/analyser manufacturer and persists continuously for five days, the instrument / analyser shall be recalibrated following procedure laid down at point (ii) above.
- (ix) In case the weekly span drift is more than the acceptable limit as specified in the catalogue brochure of the instrument/analyser manufacturer and persists continuously in the succeeding week the instrument/analyser shall be recalibrated following procedure laid down in point (ii) above
- (x) The instrument / analyser shall be recalibrated after any major repair/replacement of parts/lamps or readjustment of the alignment using standard methods and certified reference materials.
- (xi) The instrument/analyser system shall have provision of remote calibration, for verification of the system performance by SPCBs/PCCs whenever, felt necessary.
- (xii) The intensity of the lamp shall be checked once every fortnight.
- (xiii) Data capture rate of more than 85% shall be ensured.
- (xiv) The comparison/ verification of data/ calibration shall be done by CPCB empanelled laboratory once in 6 months.

Particulate Matter

- (i) The continuous Particulate Matter monitoring system (PM-CEMS) shall be calibrated at different operational loads against isokinetic sampling method (triplicate samples at each load) at the time of installation and thereafter, every six months of its operation.
- (ii) The results from the Particulate Matter monitoring system shall be compared on fortnightly basis i.e. second Friday of the fortnight, at fixed time (replicate sample) starting 10.00 am. with standard isokinetic sampling method.
- (iii) In case, deviation of the comparison values for 02 consecutive monitoring is more than 10% , the system shall be recalibrated at variable loads against isokinetic sampling method.(replicate samples)
- (iv) After any major repair to the system, change of lamp, readjustment of the alignment, change in fuel quality, the system shall be recalibrated against isokinetic sampling method. (triplicate samples at each load)
- (v) The data capture rate of more than 85% shall be ensured.
- (vi) The intensity of lamp shall be checked one every fortnight.
- (vii) The comparison/ verification of data/ calibration shall be done by CPCB empanelled laboratory as per the specified frequency.

b. Effluent Quality Monitoring

- (i) The instruments/analysers for real time monitoring of effluent discharges/ shall be calibrated with respect to their functioning, drift, linearity detection limit, output, operating temperature and other relevant parameters before installing.
- (ii) After six months of operation, the analysers/ instruments /sensors shall be checked for their health, data accuracy and reliability following multi point calibration (at least at 3 span concentrations) using standard laboratory methods and certified reference materials.

- (iii) Comparison of the values of pH, color, COD, BOD, TSS and TOC as recorded by the analysers/instruments/sensors shall be done on a fortnightly basis i.e, second Friday of the fortnight, at fixed time, starting 10.00 am., following standard laboratory methods and using standard reference materials.
- (iv) In case deviation of the comparison values exceeds the target accuracy specified for the parameter, the analyser/instrument/sensor shall be rechecked again for its accuracy again on the next day, following standard laboratory methods and standard reference materials.
- (v) In case the deviation of the comparison values is beyond the target accuracy for the specified parameters for 2 consecutive days, the system shall be recalibrated in the laboratory following multi point calibration (at least 03 span concentration) using standard laboratory methods and certified reference material.
- (vi) In case of any change in effluent matrix, the correlation between TOC: COD & TOC: BOD with laboratory reference method in case of TOC analyser and for COD and BOD with laboratory reference method in case of UV-Visible Spectroscopy shall be rechecked.
- (vii) The target accuracy for COD, BOD and TSS will be $\pm 10\%$, from the real value while for pH it will be ± 0.2 .
- (viii) The data capture rate shall be more than 85%.
- (ix) The comparison/verification of data/ calibration shall be done by CPCB empanelled laboratories as per the specified frequency.

(C) Sampling Location

The analysers/ instruments/ sensors have to be installed as per the specified sampling criteria, so as to have representative sampling of the emissions/ effluent discharges.

a. Emission Monitoring

- (i) To ensure laminar flow the Particulate Matter monitoring systems (CEMS) shall be installed at a distance atleast at 8 times the

stack diameter downstream and 2 times stack diameter upstream from any flow disturbance.

- (ii) CEMS devices shall be installed 50 cm above the port hole designated for manual sampling.
- (iii) All measurement ports into the stack shall be as per CEMS system requirement.
- (iv) Particulate CEMS devices (Cross Duct) or probe shall be installed in horizontal plane;
- (v) Probe / sampling device for gaseous CEMS shall be installed protruding downwards with suction system facing the direction of flow of flue gases.
- (vi) The construction of chimney shall adhere to CPCB publication, "Emission Regulation Part III" (COINDS/20/1984-85) unless otherwise specified by CPCB or SPCB/ PCC.

b. Water Quality Monitoring

- (i) All the sensors/ analyzers for real time monitoring shall be installed in a defined channel, without any turbulence or eddy current.
- (ii) In case more than one channel joins the common discharge channel, the sampling system shall be installed after proper mixing of the 02 (or more) streams.
- (iii) While installing multiple sensors, care shall be taken to minimize flow obstruction.

The data comparison/calibration verification shall be done by laboratories empanelled by CPCB using standard reference methods and certified on reference standard material as specified and at a frequency specified under Para (B) calibration.

(D) Empanelment of Laboratories

- (i) Laboratories recognised under the Environmental (Protection) Act, 1986 shall only be considered for empanelment.
- (ii) The EPA recognised Laboratory having achieved robust statistical Z score more than 70% in the laboratory proficiency testing shall only qualify for empanelment.
- (iii) The empanelled Laboratory shall participate in the proficiency testing programmes organised by CPCB twice a year.
- (iv) The empanelment of Laboratories, failing to achieve the required Z score in the proficiency testing shall be kept in abeyance, till their performance in the next round of proficiency testing meets the prescribed score.
- (v) Laboratories failing consecutively twice in achieving the desired Z score in proficiency testing shall not be considered for empanelment and/or their empanelment withdrawn
- (vi) CPCB shall arrange for Analytical Quality Control Proficiency Testing programmes for Air Pollutants along with the Water Quality parameters.
- (vii) The Head Quarter/ Zonal Office laboratories of CPCB shall verify performance of atleast 2% of the installed real time monitoring systems every year.
- (viii) The data comparison/calibration shall be done by empanelled laboratories at frequency specified under para-“Calibration”.

(E) Data Consideration /Exceedance for Violation

- (i) Any exceedance of values over the prescribed standards or norms shall be considered as violation.
- (ii) Instantaneous elevated data i.e. spikes with duration less than one minute shall be dealt separately and not considered for data averaging.
- (iii) Continuous exceedance of values upto 10% over the standards/norms for more than half an hour, shall require preventive action from the industry.

- (iv) Frequent exceedance of the values i.e. more than 5% of the total data capture in a day of the prescribed standards/norms shall invite action from SPCBs/PCCs
- (v) Any exceedance of the monitored values as against the standards shall invite SMS & email to the industry from SPCBs/PCCs, requiring immediate feedback on the corrective action initiated/taken.
- (vi) In case the emission/ discharge quality exceeds continuously the prescribed norms by 10% over the standards and for a duration of one hour or more, the industry shall inform the SPCBs/PCCs of the action initiated to control the emission/discharges and the effectiveness of the measures taken. In case the industry fails to control the emissions/discharges within the norms it shall move towards closure of its operation following the laid down standard operating practices.
- (vii) For any second failure of the industry to keep the emissions/discharges within 10% of the norms for period exceeding one hour the industry shall immediately move towards closure of its operation under intimation to SPCBs/PCCs.
- (viii) The values recorded during calibration or during preventive maintenance shall not be considered for exceedance and assessing the data capture rate.
- (ix) Plant start-up or batch process starting emissions shall not be considered for averaging for the initial, 30 minutes period in case of batch processes or small furnaces/ boilers not operating continuously.
- (x) Plant shut down period shall be excluded while calculating data capture rate.

(F) Data Acquisition System (DAS)

- (i) DAS (Data Acquisition System) defines the logging of digital data from the analysers

- (ii) The data shall be transferred directly from the analyser (no in between logic) to the server at CPCB/ SPCBs or PCCs via Data Acquisition System.
- (iii) Data should be in encrypted format (tamper proof)
- (iv) DAS to automatically and seamlessly transfer data to Data Acquisition & Handling System (DAHS).
- (v) Data dissemination to stakeholders from web server linked to DAHS.
- (vi) The system shall operate on Open Application Programme Interface (API) protocol based on REST based technology.
- (vii) The system shall record all the monitored values and transfer 15 min. average value to DAHS. The system shall have provision to assess the momentarily values as and when required.
- (viii) Data validation protocol inbuilt with data quality codes to defined specification.
- (ix) Web server to meet the needs of local PCBs, Industry and CPCB.

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