



KERALA STATE POLLUTION CONTROL BOARD

കേരള സംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്

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Guidelines for bringing industries under OCEEMS (Online Consent Effluent & Emission Monitoring System)

1. With the enforcement of ‘ease of doing business’ policy, it has become a need and necessity to regulate compliance by industries with minimal inspection of industries.
2. Efforts need to be made to bring discipline in the industries to exercise self-monitoring so as to impart confidence on their compliance to notified standards.
3. One such mechanism to achieve the objectives mentioned above is to implement Online Effluent and Emission Monitoring System and transfer reliable data on compliance to regulatory authority namely, the KSPCB/CPCB.
4. Online Effluent and Emission Monitoring Systems need to be installed and operated by the developers and the industries on ‘polluter pays principle’.
5. The industries falling in 17 categories of highly polluting industries, common bio-medical waste and common hazardous waste incinerators have already installed continuous online monitoring systems as per CPCB guidelines.
6. The Central Pollution Control Board in its various guidelines for continuous emission/effluent monitoring system had clarified that industries other than 17 categories should consider installation of continuous monitoring systems as a tool of self regulation.
7. The main advantage of the system include continuous measurement of data for long period of time without skilled staff being required to perform the analysis, automation of all major steps in traditional analysis like sample collection, transportation, calibration etc, timely information of sudden disturbance in the production process/pollution control system for taking immediate corrective/preventive action etc.
8. Taking the matters mentioned above into consideration, there is need to expand the OCEEMS base of the Board by bringing maximum industries into continuous online monitoring system.

9. OCEMS/CEMS basically consists of real time measuring instrument (called analyser) with analytical data dash board in the site and Data Acquisition System (DAS) for storage and onward transmission to KSPCB/CPCB.
10. The analyser shall have the features as specified in CPCB guidelines. These include:
 - i. Continuous direct measurement of pollutant concentration on 24×7 basis.
 - ii. Shall have type approved certificates as per Indian certificate scheme or certificate from one of the following foreign accredited agencies:
USEPA (U S Environmental Protection Agency)
TUV (Technischer uberuecungs verin) → English translation as Technical Inspection Association)
MCERTS (Monitoring Certificate scheme)
However, the authenticity of the certificates has to be verified with the website of the certification agency.
 - iii. Digital communication with distant computer for data acquisition/ recording/ reporting.
 - iv. Remote calibration facility
 - v. Should have provision to send alarm to Central server in case any change is made in configuration or calibration.
 - vi. Low operation & maintenance requirements with low chemical consumption and recurring cost of consumables & spares.
11. Compliance reporting protocol has to be submitted to the Board in the format prescribed in CPCB guidelines.
12. The analyser should be such that it works on the principle approved by CPCB. Also it has to be installed as per CPCB guidelines only.
13. Once the system is established, the Board has to validate the system. For this manual sampling and analysis shall be done and then compared with real time values. It gets validated only when manual & real time values are within the accuracy prescribed by CPCB or else have to recalibrated.
14. Exceedence
 - (i) Exceedence in effluent monitoring system.
 - (a) If the exceedence for 15 minutes average is greater than 40 % from permissible limits of a parameter (pH, BOD, COD, TSS) ie, exceeding

8 times/day ($8 \times 15 = 2\text{hr}$) or internet/power connectivity/server error for 2 hours then it is a level-1 Exceedence (Yellow) Alert

In such case Auto generated letter/e-mail is sent to the industry/regulator.

- (b) If 36 yellow alerts are issued during 72 hours or internet/power connectivity /sensor error for 72 hours then it is an Orange Alert (Level II)

In such case the reasons and action for rectification taken have to be submitted by the industry to the Board.

- (c) If exceedence > 72 hours (20% yellow alerts in 30 days (144 hours) or internet/power connectivity/server error more than 144 hours then it is Red Alert (Level-III). In such case auto generated letter to be issued seeking explanation with 15 days. The unit has to report the reasons, rectification status etc within 15 days. Physical inspection is required in such cases.

- (ii) Exceedence in emission monitoring system (as per CPCB guidelines)

- (a) Any exceedence of value over prescribed standards shall be considered as alarm for exceedence. Instantaneous elevated data spikes with duration less than one minute shall be dealt separately and not considered for data averaging.
- (b) In case of loss of data for more than 10 minutes per half hour, it will be considered as loss of half hourly values. In case more than 5 half hourly data is lost per day, it will be considered as data loss for a day.
- (c) Any day in which more than 3 hourly average values are invalid due to malfunction or maintenance of the automated measuring system shall be considered lost data for the day.
- (d) In case of breakdown of the monitoring system, the operator shall close down the operation of the industry/ establishment, if the problem is not rectified within 72 hours, subject to information to the Board.
- (e) Any exceedence of the monitored value against the standards shall invite SMS & e-mail from the industry from the Board requiring immediate feedback on the corrective action initiated/taken.

- (f) The values recorded during calibration preventive maintenance shall not be considered for exceedence and assessing the data capture rate. Plant shut down period shall be excluded while calculating the data capture rate.
15. Presently the OCEEMS Central Server of the Board is installed in the State data centre and its control is entrusted with a private agency (herein referred to as the vendor) which has remote access over the system. It is an open API (Application Programme Interface). API is a software intermediary that allows two applications to communicate to each other.
 16. The vendor shall not levy any charge/cost from the industry for pushing the data from the analyser installed by the industry to the central server. The vendor shall provide full support to the industry for getting the data connected to the central server. In case any violation in this regard is experienced, the industry shall report the matter immediately to the Board.
 17. The vendor shall ensure that the conditions in item 14 are functional or take immediate action for compliance with conditions in item 14.
 18. The vendor shall provide facilities for making full historical data of the monitoring available to the public.
 19. The Board shall provide new e mail for getting auto communications/alerts from the server. The alerts shall be made available in the OCEEMS website for public reference and transparency. A special team shall be constituted by the Board for validation and checking OCEEMS related data. The team shall ensure that the vendor does his part within a reasonable time.
 20. The URL for industry registration is : <https://keralapcb.glensserver.com>.
 21. There is no limitation in client side software requirements. Only thing is that they need to upload using REST API, which is the file transmission mechanism.
 22. The common errors while data upload are as follows:
Error codes:
ERROR 1001 = TIMESTAMP is Missing in the Request Header
ERROR 1002 = Authorization is Missing in the Request Header
ERROR 1004 = invalid Authorization
ERROR 1005 = TYPE5 -softwareVersion issue,TYPE4: time stamp issue,TYPE3 : site Id issue,TYPE7 : Authorization issue

ERROR 1006 = TYPE5 -softwareVersion issue,TYPE4: time stamp issue,TYPE3 : site Id issue,TYPE7 : Authorization issue

ERROR 1007 = Invalid Authorization

ERROR 1008 = Request header missing

23. The data upload follows an ISO-7168 format zip file.

The uploaded zip file will have two files, namely 1. Data File, 2. Metadata File.

Eg: File Name should be in format of

site_XXXX_STACK_A_Boiler_STACK_20220204185535.zip

24. The cost of installing OCEMS & CEMS analysers is high. The approximate cost are noted below:

Effluent monitoring system → ₹ 10-13 lakhs (pH, BOD, COD, TSS)

Stack (PM, SO₂, NO_x) system → ₹ 30 lakhs

Stack (PM alone) → ₹ 3 lakhs

Continous Ambient air quality → 50 lakhs

(with PM₁₀ & PM_{2.5}, NO_x, SO_x)

Continous Ambient air quality (with PM₁₀ or PM_{2.5} alone → ₹ 15 lakhs
(without NO_x, SO_x)

Continous Ambient air quality (with both PM₁₀ & pM_{2.5}) → ₹ 30 lakhs

Continous Noise monitoring → 7 lakhs

These values are indicative only and may vary with model & make, taxes, transportation charges etc.

25. Measurement of rate of flow is mandatory in OCEMS (effluent) & measurement of flow rate, temperature & moisture content is essential in stack.

26. Tampering with the online monitoring system will lead to revocation of the consent.

27. As a first step action shall be taken to bring the following industries under the OCEMS/CEMS purview (other than 17 category)

a) Industries with capital investment equal to or greater than 10 crore for red and 15 crore in orange category.

b) Hospitals with bed strength (inpatient facility) greater than 500.

c) Commercial/Residential apartments requiring Environment Clearance.

d) CSTP/CETP/STP with capacity greater than or equal to 100KLD.

e) Steel Process Industries irrespective of the investment.

Depending on the type of the industry/unit, the following parameters may be monitored (the parameters to be monitored may be fixed based on the pollution load/problem expected from the industry/unit):

Type of monitoring	Parameters to be monitored
Treated effluent	pH, BOD, COD, TSS
Process stacks	Particulate matter (PM ₁₀ and PM _{2.5})
Ambient air quality	Particulate matter (PM ₁₀ and PM _{2.5})

The installation shall be completed and compliance protocol reported on or before 31.08.2022 for the industries falling under 17 categories and to those industries to which instructions have already been given in this regard. For the other industries the time limit is fixed as 31.12.2022 for red category & 30.06.2023 for orange category industries. Intimation may be given to all such units from the concerned District Offices. The DO's shall submit the list of industries falling under the category mentioned above. Report on compliance shall be submitted by the District Offices by the first week of January, 2023.

28.02.2022

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CHAIRMAN

Approved for issue

Senior Environmental Engineer-3