

OCEM SYSTEM IS FOR MONITORING AND SELF – REGULATION

OCEM System is a Continuous monitoring of emission and effluents from the discharge points of industrial units. The analysers are installed on stacks/ chimneys and at the outlets of Effluent Treatment Plants, Sewage Treatment Plants, etc. where the analysers continuously generate data at regular intervals.

The 1st Revised Guideline for CEMS where issued by CPCB in August 2018. While the regulatory body has issued a legal directive “under section 5 of the Environment (Protection) Act to the units for installation of Online monitoring systems for strengthening monitoring and self-regulation”, it has relied on building a self-regulatory system for industrial emissions monitoring. The industries to exercise self-monitoring & compliance and transmit effluent and emission quality data to SPCBs/PCCs and CPCB on continuous basis.

According to the guideline CEMS is to installed at all the 17 categories of highly polluting industries along with-

- Common Bio Medical Incinerators,
- Common Hazardous Waste Incinerators,
- Sewage Treatment Plant, as well as
- Common Effluent Treatment Plant (CETP)

17 Categories of highly polluting Industries		
Pulp & Paper	Iron & Steel	Chloral Alkali Plants
Distillery	Cement	Pesticides
Sugar	Oil Refineries	Copper
Tanneries	Fertilizer	Aluminum
Thermal Power Plants	Dye & Dye Intermediate Units	Zinc
Pharma Sector	Petrochemicals	

Various technologies are available for monitoring the emission from the stack of industries and at the outlet of common treatment facilities in terms of the parameters specified in the directions issued by CPCB. However, no guidelines on selection of the Continuous Emission Monitoring Systems (CEMS) are available.

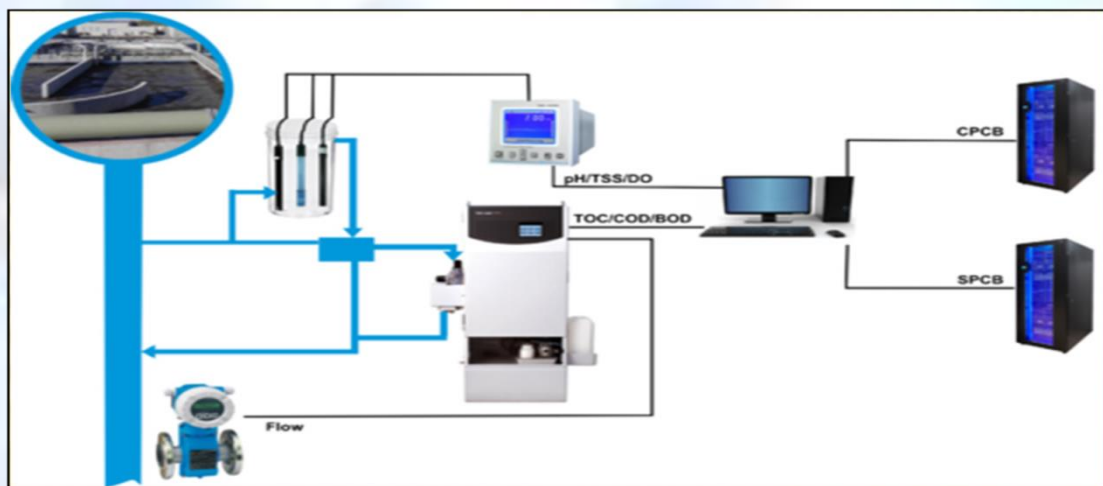
Basic Characteristics of OCEMS:-

- Digital communication with distance computer for data acquisition /recording /reporting.
- DAS (Data acquisition System) defines the logging of digital data from analyzer.
- Data Transferred directly from analyzer (no in between logic) to CPCB & SPCB.
- Data validated its encryption format (Tamperproof).
- The system records all monitored sample values and transfer 15 Minutes average value to DAHS.
- System do have provision to access the momentarily values as and when required.
- Data Validation Protocol inbuilt with data quality codes to define specification in DAS /Data Logger.

Benefits of OCEMS:-

- ✓ Provides real time data.
- ✓ Remotely accessible to operator/ regulator.
- ✓ Greater transparency in monitoring of performance.
- ✓ Continuous performance check of Pollution Control Devices and optimization of resources used.
- ✓ Time series analysis possible with continuous data.
- ✓ Reduction in regulatory cost as well as long term monitoring cost.
- ✓ Expected better compliance through self-regulation by industry, hence lower emission.
- ✓ Primary requirement for participation in market driven pollution control venture (ETS).
- ✓ In case of sudden disturbance in the system, the on-line analyzers provide timely information for taking immediate corrective/preventive steps compared to conventional methods.

Diagram of Continuous Effluent Monitoring Station and Data Transmission System



Proposed Framework for Regulatory Controls through Real Time Effluent/ Emission Monitoring System

- ❖ Presently, SMS alerts are being sent to industries for deviations in the values (15 min avg of any parameter)
- ❖ Online data transmission are categorized as – live, delay (no data transmission since last four hours), and offline (no data transmission since last 48 hours or more)
- ❖ Considering the online monitoring data, a monitoring protocol is being devised to enhance compliance level;
 - Based on deviations, connectivity and frequency, following alerts shall be generated.
 - These alerts are used for achieving compliance by industries with more focus on the proper operation & maintenance of ETP and calibration of sensors.

Compliance Level Deviation • Stack PM, SO ₂ , NO _x & CO • ETP -EQMS	Level I	Level II	Level III	Level IV
	Exceedance by –	ETP-> Average 40% of 15 minutes average parameter (s) from permissible limit for 8 times /day. (pH, COD, BOD & TSS). STACK-> >average 25% of 15 minutes average parameter(s) from permissible limit for 8 times/ day. (PM, SO ₂ , NO _x)	When more than 36 (10%) Yellow alerts are issued during any 30 day moving period.	When more than 72 (20%) Yellow alerts are issued during any 30-day moving period
When internet / power connectivity / sensor error of equipment failed continuously –	For 4 hours, but limited for maximum Six times during any 30-day moving period	For 72 hours	For 144 hours	For >7 days
When internet / power connectivity /sensor error of equipment failed continuously for Four hour –	But limited for Max. Six times during any 30-day moving period.	But limited for Max. 12 times during any 30-day moving period.	But limited for Max. 18 times during any 30-day moving period.	For more than 24 times during any 30-day moving period.
ETP-> When any of the (BOD, COD, TSS) monitored quality parameters, except pH, of effluent discharge deviates from the norm by >100% - STACK-> When PM emission deviates from the norm by >60% for- or SO ₂ , NO _x , CO deviates by >25%-	For Eight (8) consecutive readings.	For Thirty Two (32) consecutive readings. (4 Yellow alerts for >100% exceedance)	For Ninety-Six (96) consecutive readings. (12 Yellow alerts for >100% exceedance)	For One hundred ninety two (192) consecutive readings. (24 Yellow alerts for >100% exceedance)
When parameters observed values are consistent and stable without even minimum deviation of +/-5% (ETP) & +/-2% (Stack) continuously for –	> 48 hours, excluding pH.	> 72 hours, excluding pH.	> 144 hours, excluding pH	> 7 days, excluding pH.
Regulatory's Action :- Auto generated Alert Letter/ E-mail.	Alert Letter/ E-mail.	Alert Letter/ E-mail. Reply to be submitted to CPCB / SPCB through Mail.	Warning Letter/ Email. Reply to be submitted to CPCB / SPCB through Mail	Letter seeking explanation within 15 days. Reply to be submitted to CPCB / SPCB through Mail, followed by physical verification by CPCB/ SPCB.

Reference:

1. indiaenvironmentportal.org.in/files/file/Revised%20Guidelines%20for%20Real-time%20Effluent%20Quality%20Monitoring%20System
2. cpcb.nic.in/upload/thrust-area/Common_Protocol_final-13.03.2018
3. mpcb.gov.in/sites/default/files/online_ems/Direction_for_Installation_of_Remote_Calibration_Performance__22032019

