COMPLIANCE REPORTING PROTOCOLS

FOR ONLINE CONTINUOUS EMISSION & EFFLUENT MONITORING SYSTEMS (OCEMS)

CENTRAL POLLUTION CONTROL BOARD
PARIVESH BHAWAN, EAST ARJUN NAGAR, DELHI-110032
Protocols for Online Continuous Effluent & Emission Monitoring Systems (OCEMS)
06TH March, 2018

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13.03.2018

Instructions for Industries to submit information

The Industries are requested to submit information as per protocols mentioned in PART – I (Sections A, B, C, D, E) & PART – III (Section- H) **Only ONCE** and information as per protocols mentioned in PART-II (Sections F & G) **Every Quarter** on **1st January, 1st April, 1st July and 1st October** to CPCB.

PART-I : Protocols for General Information and Technology Selection & Installation of OCEMS

- **Section A: General Information about Industry & its products**
- **Section B: General Information on Source Emission (B1) & Water Use & Effluent (B2) at discharge Locations**
- **Section C: Expected Flue Gas Stream Constituents at Sample Probe Locations**
- **Section D: Flue Gas Conditions at Sample Probe Location**
- **Section E: Selection and Installation of OCEMS at Emission & Effluent discharge points**

PART-II : Protocols for Operation & Calibration of OCEMS

- **Section F: Operation and Calibration procedures adopted by the Industries for Emission Monitoring**
- **Section G: Operation and Calibration procedures adopted by Industries for Effluent Monitoring**

PART-III : IT (Information Technology) Protocol for OCEMS Data Submission

- **Section H: IT Protocol for OCEMS Data Submission**

Industries are informed that the Automated Alerts Generation Protocol prepared and operated on two sectors (Cement & Pulp & Paper Industries) has been extended on all other categories of Industries operating OCEMS. Industries are hereby requested to follow, these systems generated alerts at par with the notices and directions issued manually on exceedances. It is expected that Industries will reply and take necessary actions accordingly in their industry to control pollution.

PART-IV : Online Automated Alerts Generation Protocol

➢ Section I: Online Automated Alerts Generation Protocol based on OCEMS Data Submission by Industries

The Policy Document attached at Annexure-'A' describes automated alert generation, communication and follow-up actions.

Note 1: Any changes in industrial process, Air Pollution Control Devices, CEMS (even replacement with same technology) shall invite revised submission. Industry has to inform CPCB about the changes made and has to submit the information as per Section B (B1/B2) and other sections as applicable.

Note 2: Information related to all Sections should be submitted online through software, which will be made available at CPCB website on or before 15.04.2018. Information in this regard can be seen on http://cpcb.nic.in/Online-Monitoring-Industrial-Emission-Effluent/ home page for online monitoring systems.

Note 3: The protocol formats have to be filled by the industry representatives online as per number of discharge points and number of instruments installed for OCEMS in an industry **within 45 days from the date of the software made live at CPCB website (i. e. latest by 31st May 2018).**

Note 4: Submission of the information in all protocol formats is COMPULSORY for each category of Industry operating OCEMS.

Note 5: In case the information is not applicable, Industry has to fill up icon Effluent or Emission NOT APPLICABLE. Similarly if any parameter of emission or effluent is not applicable, then the industry will open the respective formats and declare "NOT APPLICABLE".

Note 6: Submission of information is to be done in true spirit. Any information submitted to CPCB, if found to be wrong at any point of time, strict action will be taken against such unit.

Note 7: For any assistance, contact Sh. Aditya Sharma at aditya.cpcb@nic.in or at 011-43102300 & 43102305.
Note 8: The Protocol Document is subject to revision time to time depending upon requirements.

Submission of information in the designed protocol formats required, as per Industry outlets, are detailed here in tables as PART-I, PART-II, PART-III:

PART-I: Selection and Installation of OCEMS To be submitted ONCE Only			Discharge Points (No. of formats to be submitted)			Remarks
Emission/Effluent/IT Info	**Parameter**	**Format No.**	**One**	**two**	**Three and so on**	
	General	A (Industry Info)	Common	Common	Common	

	General	B1: If Industry discharges only Emission	Common	Common	Common	
		B2: If Industry discharges only Effluent	Common	Common	Common	
		B1 & B2 both: If Industry discharges both Emission & Effluent	Common	Common	Common	
		C & D :for Emission discharging units	Common	Common	common	
Emission	PM	E1	Stack 1 (Separate format to be filled up)	Stack 2 (Separate format to be filled up)	Stack 3…. (Separate format to be filled up)	Each stackwise formats have to be filled
	All parameters SOx, NOx, CO2, O2 (except PM)	E2	Stack 1 (all parameters in Single format* to be filled)	Stack 2 (all parameters in Single format* to be filled)	Stack 3… (all parameters in Single format* to be filled).	
Effluent	All parameters pH, BOD, COD, TSS ……	G1	(ETP outlet 1) (all parameters in single format* to be filled)	(ETP outlet 2) (all parameters in single format* to be filled)	(ETP outlet 3) (all parameters in single format* to be filled)	Each ETP-wise all parameters in single format has to be filled

PART-II: Operation and Calibration To be submitted QUARTERLY			Discharge Points (No. of formats to be submitted)			Remarks
Emission/Effluent	Parameter	Format No.	One	Two	Three….	
Emission	PM	F1 (Separate copy)	1	2	3	
	SOx/SO2	F2 (Separate copy)	1	2	3	
	NOx/NO2	F2 (Separate copy)	1	2	3	
	CO2	F2 (Separate copy)	1	2	3	
	O2	F2 (Separate copy)	1	2	3	
	So on……	F2 (separate copy)				
Effluent						
	pH	G2 (Separate Copy)	1	2	3	

	BOD	G2 (Separate Copy)	1	2	3	
	COD	G2 (Separate Copy)	1	2	3	
	TSS	G2 (Separate Copy)	1	2	3	
	Other parameters …so on …	G2 (Separate copy)				
	Mass flow	G4 (Separate Copy)	1	2	3	
	Flow	G5 (Separate Copy)	1	2	3	

* Industry can fill up separate sheets if the representative feels comfortable in doing so.

PART-III	**To be submitted for each parameter separately ONCE**		Discharge Points (No. of formats to be submitted)		
Details	Parameters	Format No.	One	Two	Remarks
IT Information	Each Parameter	H1			
Emission	PM,	H1	1	2	
	Sox,	H1	1	2	
	NOx,	H1	1	2	

	CO2..	H1	1	2	
Effluent	pH,	H1	1	2	
	COD	H1	1	2	
	TSS,	H1	1	2	
	BOD	H1	1	2	
	So on….				

A. General Information

SN	Particulars	Information	
1.	Name of the Industry	As per CTO	As on date name
		KRKA Pulp & Paper	KRKA Pulp & Paper
2.	Whether at any point of time its name has changed, If yes what was the old name	Yes, name changed in year 2010. Document copy attached	Earlier known as CBKA Pulp & Paper
3.	Address:		
	If earlier it has changed, provide earlier details also		
4.	Type (Category) Sector: Like: Iron & Steel, Pharma etc.		
5.	Whether falling in "17 Category" or "GPI in Ganga" as per CPCB criteria i.e. GPI in Ganga		
6.	Details of Contact Person Responsible for plant and CEMS and shall be receiving SMS alerts and will also be responsible for replies of alerts.	1. Name: Designation: Email: Phone No. 2. Name: Designation: Email: phone no.	
7.	Whether any specialist, environmental Engineer or scientists is employed; if yes provide his mobile number and AADHAR card no.	Env. Specialist: Mobile No.: AADHAAR No.:	
8.	Whether the industry has single CTO or multiple CTO in the same premise. Please provide details of CTO with dates.		
9.	Whether premise is being used by one Industry or more than one industries with different CTOs.		

10.	Raw materials used	Names	Qty per ton of product		
11.	Main Products being manufactured in the unit as consented	Names	Qty		
12.	By products if any	Name	Qty Per ton of product		

B. Information on Source Emission & Effluent discharge Locations

No. of Source emission points	No. of Effluent Discharge Points
i.e. 03 (Three Stacks)	i.e. 01 (ETP) Outlet

Please Provide separate information sheet for each source Emission point & Effluent discharge point

B1. Information on Source Emission Locations

SN	Particulars	Information		
1.	Total Number of processes	Total number of discharge points		
2.	Description of Main Industrial Process, based on which the Industrial production is being done as on date If there are other important processes, please provide name of each process.	i.e. VSK for Cement Production		
3.	Names of each process with capacity & connected with each stack	Stack ID Connected with		
	e.g. Vertical Shaft Kiln x 50 TPH	e.g. Stack_1		
	e.g. Vertical Shaft Kiln x 100 TPH	e.g. Stack_1		
	e.g. Captive Power Plant x 100 TPD	e.g. Stack_2		
4.	Size or Production Capacity	Installed		Allowed as per CTO
	i.e. 200 TPD Cement plant sanctioned initially on 01.01.2000	*i.e.180*		*200*
	i.e. expanded to 500 from 01.01.2010	*i.e. 500*		*600*
5.	Average Running Load (TPD) for last three months *if reporting in January 2018*	*Dec 2017*	*Nov 2017*	*Oct 2017*
6.	Number of Emission points of process stacks for which Emission Limits are Prescribed	*i.e. 02 nos.*		
		VSK 1		*VSK 02:*
		---		---
7.	Physical Conditions at Measurement Locations	*Discharge point 1 /Stack1*	*Sicharge Pt 2/Stack2*	*Discharge Pt 3 /Stack3 ……..*
8.	Measurement Location (Stack /Duct)			
9.	Shape at Measurement Location (Circular or Rectangular)			
10.	Height of the CEM from Ground Level (m)			

11.	Distance of CEM downstream from last disturbance (m)			
12.	Distance of CEM upstream from last disturbance (m)			
13.	Inside Dimension at CEM location			
14.	Wall thickness at CEM location			
15.	Outside Dimension at CEM location			
16.	Material of Construction of Stack or Duct			
17.	Height of the manual Isokinetic sampling port (m)			
18.	Distance between CEM and Isokinetic sampling port (m)			
19.	Elevation from sea level (m)			
20.	If the Gaseous CEM system is not installed at 8D / 2D; whether stratification study conducted. *If Yes, Report submitted or Not. (Attach report)*			
21.	Ambient conditions at CEMS Locations			
22.	Temperature (ºC) inside the monitoring stations			
23.	Relative Humidity (%) inside the monitoring room			
24.	Availability of UPS Yes / No If Yes than capacity in Hours			
25.				
26.	Air Pollution Control Devices (APCDs) of individual emission points. Fill up all APCD details by increasing the rows in the table here. For bigger plants having very high number of points may also expand this form and provide the information with serial numbers.	*Stack at VSK 1* *ESP* ---4 ---	*Stack at VSK 2* *Multi-cyclone* ---5 ---	 --- ---6 ---
27.	Shelter or Analyser Location i.e. On the stack traverse point or at Ground level. Or at 15 feets away from port hole location etc.			
28.	Whether there is provision of ladder or lift or monkey ladder to reach the location of installation i.e. Lift with AC Container at the height of 140 meters at Stack			

B2.: Information on Water Use and Effluent Locations:

Sl. No.	Details	As per CTO	Actual as on date		Remarks
1.	Source of Fresh Water in KLD	Ground Water	Surface Water	Municipal Supply	Others (specify)
2.	If industry is using recycled water from any source provide details with Qty. of each source in KLD	Source name	Qty In KLD	Source name	Qty In KLD
3.	Details of Individual Processes from which effluent is being generated along with effluent quantities.	Total No. of Processes		Total No. of Discharge Points	
		Name	Qty Per ton of product	Individual process outlet connected to ETP/Other practices	Process type (Continuous/ batch/other)
		e.g. Process 1		e.g.ETP1	
		e.g. Process 2		e.g. ETP1	
		e.g. cyanide pit outlet		e.g. Disposed through separate ETP 2	
4.	Whether industry is receiving or processing effluent of any other				

	unit/industry.						
5.	Area of factory premises in square meters	As per CTO	If additional land is procured details thereof;		If any land is acquired for irrigation of effluent discharge		Others(specify)
6.	Effluent handling practices and mode of disposal of treated effluent (Tick)	Through CETP (name of the CETP)	Through ETP	For irrigation (Command area, ha) (If yes provide Agreement copies incl. area in sq. mt.)	ZLD	Discharge into drain/ river after treatment	Others (specify)
7.	Whether effluent is treated onsite through ETP or sent to CETP after primary Treatment	onsite	CETP after primary treatment If Yes (name the CETP)		If ZLD (route to achieve ZLD)	CETP directly (If Yes name the CETP)	Others (Specify)

8.	If through CETP, provide details of Primary treatment					Remarks
9.	If Effluent is sent to CETP provide the current agreement document of acceptance of CETP and provide details such as date of agreement, CETP details, accepted effluent qty etc.					Remarks
10.	Whether CETP is connected with CPCB for data submission If Yes Provide details					
11.	Number of outlets with their details are to be provided	Numbers	Location	Latitude and longitude	Discharge Qty	Flowmeters installed Y/N if Yes the details of flowmeter like make , model, calibrated on date(last), technology, sr no. supplier name and telephone number etc.
		01.				
		02.				
12.	Mode of disposal as per	Surface water (River/Drain	Irrigation	Marine Outfall	CETP	To any other industry	Others(Specify)

	consents	etc.)					having ETP			
13.	Discharge Practice adopted by the industry for each outlet	Surface water (River/Drain etc.)	Irrigation	Marine Outfall	CETP	To any other industry having ETP	Others(Specify)			
	Outlet 1									
	Outlet 2									
	Provide reason of deviation if any.									
14.	Consented effluent parameters	pH	BOD	COD	TSS	flow	..	..		Others
	Prescribed Standards									
	Unit of reporting	----	mg/l	mg/l	mg/l	KLD	..	…		
	Parameters Monitored through OCEMS (Tick)	pH	BOD	COD	TSS	flow	..	..		Others
15.	Whether unit is ZLD	Y/N								
16.	Location of the camera earlier consented	At designated outlet Y/N available at URL http://abc.com……								

17.	If camera installed then whether PTZ cameras Installed or not? If Yes	Number of cameras Yes/No								Nos.
		Sr. No.	Locations		Latitude	longitude	Name of the Tech. Providers portal to which cameras are Connected			Remarks
	Specifications of PTZ	Make		Model	Serial Number		Zooming capacity			
							….X			
	Cameras connected with DVR or not?									
18.	DVR related information	Location of installation	Make & Model& Sr. No.	Whether connectivity of DVR is provided to CPCB for remote	Whether plugin free access is provided or not?		Recording capacity with all cameras in motion detection mode (Minimum two months) – Y/N			Size of Hard Disk in TB

				access or not?			
19.							
20.	Farmers agreement or consent obtained from irrigation department						
21.							
22.	Designed treatment capacity of ETP in KLD	As per CTO		Actual capacity designed			Average treated effluent
23.	Number of stages of ETP (Primary/Secondary/Tertiary) for each outlet						
24.	Schematic ETP details for each outlet (Provide flow diagram)	Yes/No					
25.	Monthly Discharge of treated effluent in KLD at each outlet	As per CTO		Actual quantity in this quarter			

26.	Final discharge body (on land/surface/river) for each outlet	As per CTO	Actual as on date		
	Outlet 1				
	Outlet 2				
27.	Name of Final Discharge Body	Outlet 1.	Outlet 2.		
28.	Number of Outlets	As per CTO	Actual as on date		
29.	Whether OCEMS is installed in all outlets	Yes	No		

C. Expected Flue Gas Stream Constituents at Sample Probe Locations (whichever parameter is applicable)
Fill the data as available.

SN	Constituents	Expected Concentration at Stack1	Observed Concentration Range at Stack1		Expected Concentration at Stack 2	Observed Concentration at Stack 2		Expected Concentration at Stack3	Observed Concentration at Stack3	
		Range	Min	Max	Range	Min	Max	Range	Min	max
1.	SO2 in ppm									
2.	NOX in ppm									
3.	CO in ppm									
4.	H2S in ppm									
5.	NH3 in ppm									
6.	HCl in ppm									
7.	HF in ppm									
8.	Hydrocarbon in ppm									
9.	O2 in %									
10.	CO2 in %									
11.	Opacity / PM in % / mg/Nm3									
12.	Any other									

D. Flue Gas Conditions at Sample Probe Location

Condition	**Expected Range Stack 1**	**Observed Range Stack 1**		**Expected Range Stack 2**	**Observed Range Stack 2**		**Expected Range Stack 3**	**Observed Range Stack 3**	
Flue gas Temperature (ºC)		Minimum	Max		Min	Max		Min	Max
Flue gas static									

pressure (mm H_2O)									
Flue gas velocity (m/Sec)									
Particulate (mg/NM^3)									
Moisture (%)									
Water Droplets (Yes or No)									
Fuel Used									
Quantity of Fuel Burnt									

Note: The values mentioned should be in accordance with historical data

PART E1: Protocol for Selection and Installation of PARTICULATE MATTER (PM)

Industry: **Date:**

Process to which OCEMS attached: **Stack ID:**

(If discharge points are multiple, submit multiple copies of this format separately for each ID)

S. No.	Information on	Detail information					Remarks
1.	Type	In-situ	☐				
		Extractive	☐				Pipe Heating mechanism is must
2.	Technology In Situ	A) Triboelectric or Electro-dynamic	☐	AC ☐	DC ☐	AC / DC ☐	Industry installed DC Tribo must have Flow measuring Device
		B) Opacity	☐				Not applicable for <2 m path
		C) Optical Scintillation	☐				Not suitable for >15% Moisture
		D) Light Scattering	☐	Forward ☐	Back ☐		Only Backward / Side Proscatter/opacity is allowed at >4m stack diameter
		Forward Proscatter ☐	Other Forward ☐	Backward Proscatter ☐	Back/Side Scatter ☐		
3.	Technology Extractive	A) Light Scattering	☐	Forward ☐	Back ☐		The Sampling should be Online Isokinetic in all cases
		B) Optical Scintillation	☐				
		C) Beta Attenuation	☐				
	Distance of Measurement Bench (m)	☐					Heated Transfer line is must. Heating shall not be less than 100 ± 10 ºC
	Whether Heated line installed for sample transport	Yes ☐	No ☐				

	If Yes Temperature of Heating (ºC)						
	Conditions at Mesurement Point	Temperature ☐ ºC			Moisture ☐ %		
S. No.	**Information on**	**Detail information**					**Remarks**
4.	Light Source for optical measurement devices	Type :Laser, Diode etc.	Make	Sr. No.	Model	Life expectancy	Ensure that the source is replaced before its lifetime.
5.	Sensors used						
6.	Serial No. of Devices and all accessories (Like temp. sensor, Flow, DAHS Box etc.) if possible.						
7.	APCD Detail	Cyclone ☐	Bag Filter ☐	Wet Scrubbing ☐	ESP ☐	Others ☐	(A) Not Suitable after ESP
8.	Stack Diameter	< 1.0 m ☐	1 – 2.0 m ☐	2 – 4.0 m ☐	>4.0 m ☐		Tribo is fit upto 2m Only Backward Proscatter and opacity are suitable for stack having more than 4m
9.	Moisture %	Dry (upto 5 %) ☐	5 – 15 % ☐	15 – 35 % ☐	>35% ☐		
10.	Flow Meter Installed	Yes ☐		No ☐			Single point pitot type not recommended. Thermal anemometer is also not suitable at <3m/sec velocity
	Type of Flow Meter	Pitot Type ☐	Thermal Anemometer ☐	Ultrasonic ☐	Infrared ☐		
	Mention location of installation of Flow meter	Distance from Probe	Inclination	Projection (Up/Down)			Installation should be as close as possible to the probe
11.	Moisture Monitoring Device Installed	Yes ☐		No ☐			
12.	CO_2 Sensor	Yes ☐	No ☐	Type: NDIR ☐	FTIR ☐	DOAS ☐ TDLS ☐	Chemical Sensor based not Permitted
				Sensor ☐			

13.	O_2 Sensor	Yes ☐	No ☐			
			Type: Zirconium Oxide / O_2 Cell ☐ TDLS ☐ Paramagnetic ☐ Sensor ☐			Chemical Sensor based not Permitted
14.	CO Sensor	Yes ☐	No ☐			
			Type: NDIR ☐ Sensor ☐			Only NDIR is permitted
15.	Temperature Probe installed	Yes ☐	No ☐			
	Mention location of installation of Flow meter	Distance from Probe	Inclination	Projection (Up/Down)		Installation should be as close as possible to the probe
16.	Whether installation point is meeting 8D and 2D distance or at equivalent diameters	Yes ☐	No ☐			No Exemption is allowed If some other system is followed, same should be detailed here. If different system followed, then copy of the acceptance (by SPCB or any other authority) for the same should also be provided.

E2: Protocol for Selection & Installation of Gaseous Analyzer in stack (SO2, NOx, CO2, O2 etc.)

Industry: **Date:** **Parameter: $SO_2/NOx/CO_2/O_2/CO/….$**

Process to which OCEMS attached: **Stack ID:**

(If discharge points are multiple, submit multiple copies of this format separately for each ID)

S. No.	Information on	Detail information	Remarks
1.	How many processes connected with this stack Name all processes	1 2 >4	
	Process names with capacity e.g. Coal fired Boiler TPH		
2.	Name of emission points, where CEMS installed as per industry nomenclature for ex. Stack 7B1		
3.	Location of CEMS at individual stack/Duct (Height from the Ground Level)		As per 8D/2D or some other system followed
4.	Type of APCDs connected with individual emission point	ESP Scrubber Cyclone Bag Filters Others	If APCD is changed at any point of time should be informed
5.	Availability of power supply including proper earthing at the instrument location	**Yes** **No**	To be definitely provided by the industry
6.	Alternate power supply	**Yes** **No**	To be provided at the point of monitoring by industry
7.	Facility available for transporting the man and material at the measurement point including	**Yes** **No**	To be provided at the point of monitoring by industry

8.	Parameter Monitored and continuous data made available to CPCB/SPCBs/PCCs indicate clearly. Like SO_2,/NO_X continuous & CO_2 & O_2 are done through flue gas analysers etc. once in a month or at the time of calibration or if all parameters are monitored continuously and data is being submitted online.		SO_2 NOx O_2 CO_2 Others CO SOx Temp RH Moisture	Each industry is required to continuously monitor all the required parameters which are as per CPCB guidelines.
9.	Type of Technology used		Extractive In- Situ Dilution Open Path Others	
Note	If extractive system is used then industry should ensure that there remain pressure/vacuum in the line and its data (including temp of extraction system) is continuously monitored and transmitted to CPCB. Similarly in case of dilution, the data of continuous dilution should be made available to CPCB online.			
10.	Measurement Technology	Extractive	Chem. UV- Flour NDIR IR-GFC PARAM NDUV FTIR Fl. I El. Chem.	Each technology has its pros and cons, industry has to analyse its flue gas parameters and on the basis of suitable technology instruments should be installed
		In- Situ	NDIR Zirconium Oxide Quantum Laser UV	
		Open Path	UV-DOAS IR-DOAS	
		Others	Tunable Diode	

S. No.	Information on		Detail information	Remarks
11.	Measurement Technology (Parameter wise)	SO_2		
		NO_x		
		CO_2		

		CO						
		O_2						
		Others						
12.	Instrument Details	Parameter	**Location**	**Make**	**Model**	**S. No.**	**Approval**	
		SO_2						
		NO_x						
		CO_2						
		CO						
		O2						
		Others						
13.	Heated Line for Sample Transport		**Yes** ☐	No ☐				
14.	If Yes, Heating Temperature (°C)		☐					
15.	Condition at Measurement Point		**Temperature (°C)** ☐	**Moisture (%)** ☐				
16.	Availability of proper platform and port hole for sampling system		**Yes** ☐	No ☐				
17.	Date of Installation of CEMS system		**Date** ☐	**Time** ☐				
18.	Distance between sampling system and analysers (Ext. System) in meters							
19.	Sample conditioning system (Ext. System)							
20.	Cleaning mechanism and frequency of cleaning							
21.	Important points about other technology used which is not mentioned above, may be added here.							

Protocol E3: Selection and installation of pH, BOD, COD, TOC, TSS, NH3N Chromium, Arsenic and AOX OCEMS at Effluent Discharge Points

Industry: **Date:** **Parameters: pH,BOD,COD,TOC,TSS, …. Indicate all parameters**

Process to which OCEMS attached: **Effluent Discharge ID:**

(If discharge points are multiple, submit multiple copies of this format separately for each ID)

S.No.	Information on	Detail information										Remarks
1.	Type of sampling system	In-situ ☐		Extractive ☐								
2.	Parameters installed and their system details	pH ☐	Temp ☐	Flow ☐	BOD ☐	COD ☐	TSS ☐	NH_3N ☐	AOX ☐	Chromium ☐	Any other ☐	
3.	Make											
4.	Model											
5.	Serial Number											
6.	Approval like USEPA/MCERTS/TUV etc.											
7.	Regular Calibration frequency suggested by manufacturer											
8.	Life of sensor											
9.	Sensor cleaning frequency as suggested											
10.	No of discharge points	One ☐				Two ☐			more than two ☐			If multiple then multiple formats filled or not ?

11.	Whether OCEMS installed at all discharge points	Yes ☐			No ☐			Should be installed at each discharge point
12.	Discharge points Drain design	Circular ☐			Rectangular ☐			
	Dimension in mm	Diameter:			LxBxH:			
	Open/Closed	Open ☐	Closed ☐		Open ☐	Closed ☐		
13.	Installation location of probe with reference to ETP outlet	Within 1 mtr ☐	1-2 mtr ☐	More than 2 mtr ☐				
14.	Average water/effluent level at outlet channel	Less than 6" ☐	Bet 6" to 10" ☐	More than 10" ☐				
15.	Technologies adopted							
16.	For pH	Holographic pH Sensor ☐	Glass electrode ☐	Solid State ☐	Others (specify) ☐			
17.		Data submitted with temperature correction. ☐			Data submitted without temperature correction. ☐ If Not whether temperature data is separately submitted.			
18.	For In situ BOD/COD	UV Vis Spectrophotometry			Single Beam ☐	Double Beam ☐		
19.		Entire Spectrum Scanning 200-750nm			Y/N			Requd as per guideline
20.		Whether whole spectra recorded			Y/N			Requd as per guideline
21.		If yes recording frequency in minutes						
22.		Optical path length of the system installed in mm						

23.		Matrix matching through inbuilt Library available	Y/N	Requd as per guideline
24.		Name parameters for which Corrections applied	i.e. TSS	TSS & temp corr is requd as per guidelines
25.		Present practice of calibration check adopted by the industry		Recognize r lab to be engaged for calibration
26.		Name of the EPA Approved laboratory being deployed for calibration	….	
27.	For Extractive COD/BOD	Combined Combustion Catalytic Oxidation at 680^0C and NDIR Method (TOC)	☐	Temp should reach the desired levels
28.		Whether thermogram can be accessed remotely	☐ Provide details to acces the same	
29.		Name parameters for which Corrections applied	i.e. TSS	Remarks
30.		Length of sample transfer line in mtrs	…	
31.		Continuous Sample flow data submitted online	Y/N	requd
32.		Converter efficiency data is being submitted online	Y/N	
33.		TOC:COD & TOC: BOD ratios submitted online	Y/N provide frequency	For TOC these ratios are

					requd.
34.		Present practice of calibration check adopted by the industry			
35.		Name of the EPA Approved laboratory being deployed for calibration			
36.	For TSS	Scattered Light Method (IR)	☐		
		UV-Vis Spectro-Photometry (single Wavelength)	☐		
37.	For Chromium	Colorimetric Method	☐		
		UV Spectrophotometry Entire Spectrum Scanning	Single Beam ☐	Double Beam ☐	
38.	For NH_3-N	Ion Selective Electrode method Whether temp correction is there	Yes ☐	No ☐	
		UV Spectrophotometry Entire Spectrum Scanning	Single Beam ☐	Double Beam ☐	
39.	For Arsenic and Nickel	Voltammetry Y/N	☐		
40.	For AOX	UV-Vis Spectrometry Y/N	☐		
41.	For flow	Magnetic/ Ultrasonic/ Others (Specify)	☐		
		Cross sectional area in mm2			
		Unit of flow measurement for data submitted	m/s, m3/s		

Protocol F1: Protocol for Operation and Calibration of PM CEMS

Industry: **Date:** **Parameter : PM**

Process to which OCEMS attached: **Emission Stack ID:**

(If discharge points are multiple, submit multiple copies of this format separately for each ID)

S. No.	Information on	Detail information	Remarks
1.	Emission Limit Prescribed (mg/NM^3)		
2.	Whether any corrections for CO2 or O2 prescribed		
3.	Measurement Range of Instrument	Minimum ____ mg/Nm3 Maximum ____ mg/Nm3	
4.	Whether Dual range is available	Minimum ____ mg/Nm3 Maximum ____ mg/Nm3	
5.	Selected Measurement Range	Minimum ____ mg/Nm3 Maximum ____ mg/Nm3	
6.	Whether auto ranging available	Yes ☐ No ☐ If Yes Mention Ranges ____	
7.	Dust Factor Set	Dust Factor ____ Date: ____ Dust Factor ____ Date: ____	**Provide details of all dust factors applied datewise.**
8.	Stack Correction Factor set for Opacity Monitor	____ Date ____	
9.	Plant Load Condition when Correlation Calibration done with Isokinetic sampling	____	
10.	Whether triplicate sampling at selected load was done	Yes ☐ No ☐	
11.	Whether the calibration was made for different Load conditions	Yes ☐ No ☐ Loads in which system calibrated: 25% ☐ 50% ☐ 75% ☐ 100% ☐	Calibration at different Load conditions is highly recommended. The adjustment as per

							requirement of calibration is allowed and to be recorded and revised online
12.	Date of last Calibration			Record of adjustment if done			
13.	How many calibrations carried out in previous quarters						**If record is being filled on 1st of July provide information of April to June**
S. No.	**Information on**	**Detail information**					**Remarks**
14.	Raw data recorded during calibration based on which Dust Factor calculated	Velocity ☐ m/Sec	Flue Gas Temp. ☐ °C	Moisture ☐ %	PM ☐ mg/Nm^3		
		CO_2 ☐	O_2 ☐ %	PM CEMS Reading ☐ mg/Nm^3 or mA			
15.	Whether the data submitted to SPCB or CPCB are being normalized for	Temperature ☐	Moisture ☐	Pressure ☐			Each data has to be normalized at 760 mm of Hg Pressure , 25°C Temperature on dry basis
16.	Whether CO2/O2 Correction applied as prescribed in emission limit	Yes ☐	No ☐				
17.	Instrument calibration frequency prescribed by manufacturer	Once in 3 months ☐	Half Yearly ☐	Yearly ☐	Others ☐		
18.	Frequency of Calibration Verification (without adjustment)	Fortnightly ☐	Monthly ☐	Quarterly ☐	Yearly ☐		By Empaneled / Accredited Laboratories No adjustment is allowed during verification
19.	Drift Specified by Manufacturer	Zero ☐		Up Scale (Span) ☐			
20.	Whether manufacturer's instruction followed	Yes ☐	No ☐				
21.	Drift Measured In same time span as specified by manufacturer	Zero ☐		Up Scale (Span) ☐			
22.	Frequency of Zero and Upscale Check	Daily ☐	Weekly ☐	Fortnightly ☐	Monthly ☐		

	prescribed in Manual					
23.	Frequency of cleaning and maintenance	Daily ☐	Weekly ☐	Fortnightly ☐	Monthly ☐	
24.	Components to be cleaned as suggested by Manufacturer					
25.	Cleaning Mechanism	Automatic Purging ☐		Manual Cleaning ☐		
26.	Schedule of routine cleaning maintenance fixed by the industry					

Protocol F2: Protocol for Operation and Calibration of Gaseous Analyzer in stack (SO2, NOx, CO2, O2 etc.)

Industry: **Date:** **Parameter : SO2/NOx/CO2/O2 /…..any other (Select)**

Process to which OCEMS attached: **Emission Stack ID:**

(If discharge points are multiple, submit multiple copies of this format separately for each ID)

S. No.	Information on	Detail information	Remarks
1.	CEMS selection as per the matrix provided in guideline	**Yes** ☐ **No** ☐	
2.	CEMs installation criteria (Location) meets as per guideline	**Yes** ☐ **No** ☐	**If no then submit details of deviation and get confirmation through CPCB in writing**
3.	Operating Instrumental Temperature range defined by the manufacturer		

4.	Stabilization time for analysers defined by manufacturer			
5.	Measurement Range in which instrument is operational	**0-200** ☐ **0-500** ☐ **0-1000** ☐		
6.	Unit of measurement (Reported)	**PPM** ☐ **PPB** ☐ **mg/m³** ☐ **µg/m³** ☐		
7.	NOx reported as NO2	**Yes**	**No**	**NOx = NO2+1.53 x NO**
8.	Calibration Frequency	Every 10 Days ☐ 15 Days ☐ 30 Days ☐ More ☐		**As Prescribed by the supplier?**
9.	Calibration Frequency (Multipoint)	Monthly ☐ Quarterly ☐ Half Yearly ☐		If not done inform.

10.	Calibration Gas Details	SO_2	**Conc.** ☐	**Traceability** ☐	**Validity** ☐	**Manuf.** ☐	
		NO_x	☐	☐	☐	☐	
		CO_2	☐	☐	☐	☐	
		O_2	☐	☐	☐	☐	
		Others	☐	☐	☐	☐	
11.	Date of latest Multipoint Calibration		**SO_2** ☐	**NO_x** ☐	**CO_2** ☐	**O_2** ☐	**Others** ☐
12.	Concentration at which calibration made (ppb/ppm)	SO_2	☐	☐	☐		
		NO_x	☐	☐	☐		
		CO_2	☐	☐	☐		
		O_2	☐	☐	☐		
		Others	☐	☐	☐		

S. No.	Information on		Parameter	Detail information	Remarks
13.	14.		**SO2**		
			NOx		
			CO2		
			O2		
			....		
15.	16.	SO_2	**Before Calibration**	**After Calibration**	**Consistent Gain Factor record should be maintained**
		NO_x			
		CO_2			
		O_2			
		Others			
17.	18.	SO_2	**Week 1** ☐ **Week 2** ☐ **Week 3** ☐ **Week 4** ☐ **Monthly** ☐		**Zero Check is to be performed but correction is not permitted. Corrections are allowed only during calibration**
		NO_x	☐ ☐ ☐ ☐ ☐		
		CO_2	☐ ☐ ☐ ☐ ☐		
		O_2	☐ ☐ ☐ ☐ ☐		
		Others	☐ ☐ ☐ ☐ ☐		
19.	20.	SO_2	**Week 1** ☐ **Week 2** ☐ **Week 3** ☐ **Week 4** ☐ **Monthly** ☐		**Span Check is to be performed but correction**

		NO_x							**is not permitted. Corrections are allowed only during calibration**
		CO_2							
		O_2							
		Others							
21.	Analyser Value of Each Parameter	SO_2	**Before Calibration**		**After Calibration**		**Deviation (%)**		**Calculate variation in the actual measurements after calibration**
		NO_x							
		CO_2							
		O_2							
		Others							
22.	Data Capture Rate (in %age)		Parameter		%age				**%age data capture should not be below the percentage defined in the guidelines**
			SO_2						
			NO_x						
			CO_2						
			O_2						
			Others						
23.	Maintenance frequency		01 month		**02 months**		**03 months or more**		
24.	Whether calibrated the system each time after maintenance or not?		Yes/No						
25.	Average time required for maintenance		01/02/03/04 hrs or more						
26.	Zero Adjustment Daily (Automatic)		Yes		**No**				**Only adjustment is allowed at the time of calibration**
27.	Availability of Calibration gas cylinders attached to the system		Yes		No		If yes : since when provide date: If No : Since when provide date:		
28.	Source(s) of Calibration								

	If Gas cylinder used for calibration (Information to be provided to CPCB each time when new cylinder is procured)						
	Name of the Supplier	Address with City	Invoice number & Date	Concentrations with units	Validity dates on Certificates	**Certificate Copy Provided to CPCB Yes/No**	**Location of use of the gas for the calibration**
	1,						i.e. For Sox calibration at VSK 1.
	2,						*i.e. for Nox & Sox at VSK 2*
29.	Source(s) of calibration Cuvette if used for calibration (Information to be provided once at the time of initial installation)						
30.	Parameter for which cuvette is used	Calibration Ranges of cuvette	Guarantee of accuracy	Number of cuvettes	Linearity obtained or not?		*Any other information*
31.	i.e. Sox	0-200ppm	1% at ….	1	Only one point calibration		--
32.	If calibration is being done through Multi point Calibrator (Separate calibrator)						
33.	Make & Model of calibrator	No of chambers for permeation tubes	Permeation tube procured on date	Size of tube	Wafer/Steel	Flow range of calibrator	*others*
34.	If calibration is being done through single point calibrator (inbuilt permeation chamber based)						
35.	Make & Model of Instrument	Permeation tube procured on date	Size of tube	Wafer/Steel	Flow range of calibrator		*others*
36.	Source(s) of Zero Gas						
	If using Nitrogen cylinder (Information has to be submitted each time when new cylinder is procured)						

	Supplier Name	Address with City	Invoice number & Date	Zero air purity in %	Validity dates on Certificates if any	**Certificate Copy Provided to CPCB Yes/No**	**Location of use of the gas for calibration**
	If Zero gas generator is being used (information to be provided only once at initial installation)						
	Supplier name	Address with city name	Invoice number & Date	Technology used	Pressure to be maintained if specified	Cleaning frequency	**Other details if any**
							Pl inform if industrial air is being used for zero calibration
	i.e. for Sox & NOx at Kiln 3	i.e.Using industry grade zero air for zero calibration i.e. using compressed natural air for zero calibration					

37.	Name of the Supplier for standard gases	Address with City	Invoice number & Date	Concentrations with units	Validity dates on Certificates	**Certificate Copy Provided to CPCB Yes/No**

Protocol G2: Protocol for Operation and Calibration of Effluent Parameters

Industry: **Date:** **Parameter : pH/BOD/COD/TOC/TSS/ ……(Select)**

Process to which OCEMS attached: **Effluent Discharge ID:**

(If discharge points are multiple, submit multiple copies of this format separately for each ID)

S.No.	Information on	Detail information		Remarks
1.	Name & details of Technology Provider (TP)	Name of TP: Name of person responsible: Phone no.: Mobile No. Address of TP Email ID: Any other info:		

2.	Serial Numbers	Sensor:	DAS:	Electronic display:	
3.	Method Adopted				
4.	Whether Method is approved	Yes ☐	No ☐		
5.	If yes, approved by	APHA ☐	ASTM ☐	USEPA ☐	ISO ☐
6.	Measuring Range	Minimum ☐ mg/L	Maximum ☐ mg/L		
7.	Selected Measurement Range	Minimum ☐ mg/L	Maximum ☐ mg/L		
8.	Measured at which path length	0.5 mm ☐	1mm ☐	2mm ☐	3mm ☐	15mm ☐
9.	Measurement Cycle	< 20 sec ☐	20-60 sec ☐	>60 sec ☐	
10.	Whether Matrix change adaptation installed	Yes ☐	No ☐		
11.	Whether Temperature is measured	Yes ☐	No ☐		
12.	Whether Temp compensation applied in case of pH	Yes ☐	No ☐		
13.	Whether Turbidity is measured in case of pH				
14.	Whether flow is measured	Yes ☐	No ☐		
15.	In case of TOC Methodology for COD & BOD whether correlation is established	Yes ☐	No ☐		
16.	In case of UV-Vis Absorption Methodology for COD & BOD whether	Yes ☐	No ☐		

	Turbidity is measured					
17.	Life of sensor prescribed by supplier					
18.	Whether sensors were replaced, if yes date of replacement					
19.	Prescribed Frequency of Calibration	Fortnightly	Monthly	Quarterly	Yearly	
20.	Whether sensor is Factory pre-calibrated	Yes ☐		No ☐		
21.	If yes, Calibration certificate provided	Yes ☐		No ☐		
22.	Whether Local multi point calibration done	Yes ☐		No ☐		
23.	If yes, last 3 dates of calibration					
24.	Name of standard Solution used for calibration					
25.	What % difference observed in the avg values and calibration value					
26.	Cleaning Mechanism	Automatic ☐		Manual ☐		
27.	Whether data has been validated	Yes ☐		No ☐		
28.	If yes, Name the Method					
29.	Whether samples are being analysed in Laboratory	Yes ☐		No ☐		
30.	Whether parameter load is calculated	Yes ☐		No ☐		
31.	If yes, What is a	Daily ☐	Weekly ☐	Monthly ☐		

	frequency					
32.	Whether lab is EPA recognised	Yes ☐		No ☐		
33.	Whether O&M contract is given	Yes ☐ Duration of Maintenance contract …….		No ☐		
34.	Maintenance frequency	Quarterly	Six Monthly	Yearly	Bi-yearly	
35.	Time required for Maintenance					
36.	Whether system is calibrated after maintenance	Yes ☐		No ☐		

Protocol H: IT Protocol Emission & Effluent Parameters

Industry: **Date:** **Parameter : effluent/emission/ SOx……(Select)**
Process to which OCEMS attached: **Effluent/Emission Discharge ID:**
(If discharge points are multiple, submit multiple copies of this format separately for each ID)

PART H - IT Protocol to be submitted even if a single parameter is being monitored in the industry.

Data for each parameter is to be submitted separately.

Sl. No.	Details to be provided	observations	Actually followed practice	Remarks
1.	How long system is used as unattended	<5 Days	<15 Days	<30 Days Or more
2.	Calibration status	As on date: Regular	Last calibrated on: Once in month	Last Calibrated on: Once in 3 months/Not Done
3.	Inbuilt zero and span facility available in the system or	Y/N	Whether, online Zero & Span calibration is being	Y/N if Yes at what frequency Y/N

	not		done at 10:00 am	
4.	Online zero and span facility available in the system or not	Y/N	Whether, online Zero & Span calibration is being done at 10:00 am	Y/N if Yes at what frequency Y/N
5.				
6.	Whether corrections (span & Zero) are being done automatically or manually	Auto/Manual		Y/N
7.	Whether data notification facility is available or not	Y/N	Whether data notification acceptance or rejection by SPCBs is practiced.	Y/N
8.				
9.	Whether raw data and validated data is being sent through online mechanism directly to the server	Y/N	Remote management available Y/N	Multi server data submission possible or not Y/N
10.	Log files data recorded ? Y/N	If yes provide location in the station computer file like d:\data	Is there in any intermediate PC or plant server Y/N	Config. Change alarm setting is possible Y/N Y/N

11.	Events logs recording location address: 182.12.12.12\data\NO2 etc.		Is there any in between PLC	Whether data is integrated at Central Control Room of Industry
12.	Independent analysis, notification, calibration provisions for each specific parameter availability	Y/N	If yes at what address available for CPCB to view it.	
13.	Non volatile memory storage capacity	06 Months or 01 year	01-02 years	2 to 5 years Or more
14.	Remote calibration data availability at central server available	Y/N	If Yes provide location details:	
15.	User friendly maintenance data visualisation & diagnostic features data	Y/N	If Yes provide location details	Duration for which this data is available
16.	Continuous measurements on 24x7 basis Y/N	Change of units possible or not Y/N	What channel used for data transfer RS 232/RS485/LAN/USB	

17.	Analog outputs are available with each analyser and connected to the plant central control room	Y/N	In case no in which parameters it is not available	
18.	Data sent is in encrypted format Y/N	Data is linked to Data Acquisition and Handling Center Y/N	Software is operating on open API and REST technology Y/N	Systems records 15 minute values Y/N
19.		Y/N		
20.	Data quality codes defined or not? Y/N	Please provide the list of codes defined through cems.cpcb@nic.in	Instantaneous data visualization is possible or not Y/N	Data from this system is being sent on SPCB server Y/N
21.	The data validation mechanism is available in the system Y/N	Y/N	Is there any procedure to submit the data manually Y/N	If yes provide the location details

22.	Is data being displayed on the industry's own website Y/N	The data can be depicted on map or not? Y/N	Database for calibration for last six months is available in the system Y/N	Data can be visualised by industry in terms of Statistical mean mode and median, SD etc Y/N
23.	The data can be visualised in tabular and graphical format or not? Y/N	Visualization w.r.to Standard limits is being done or not? Y/N	Which transmission channel is being used for data submission GPRS/Data Cards/Leased Line 1 MB or 2 MB/BroadBand	Data storage availability >1>2>3>5Year
24.	Backup power source available Y/N	If Yes : capacity of the power source.	Is data being displayed on the industry's own factory gate	

		a. offline/online b. backup Hours:	Y/N	
25.	Location of DAHS installed in the industry. *i.e. Control Room* *i.e. AQMS Room etc*		Single or Multiple DAHS available	
26.	Deviations if any may be summarised here pointwise	1. 2. 3. 4.		

Signature with Name of Industry Representative

Annexure - A

Online Automated Alerts Generation Protocol for OCEMS (Emission & Effluent)

Central Pollution Control Board
Delhi

13.03.2018

Online SMS Alerts Mechanism

- All Online effluent monitoring equipments are connected to Servers to transmit data through GPRS
- Server collect the analyzed data on every 1 minutes and generating files
- Server transmitting average of 15 min data to CPCB / SPCB on 15 min intervals through GPRS connectivity
- Server generates auto SMS Alerts to the registered mobile numbers for deviations, if any

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.

Deviation	Alert	Action by Industry	Regulator's Action
ETP – EQMS ❑ Exceedance by > average 40% of 15 minutes average parameter (s) from permissible limit for 8 times /day. (pH, COD, BOD & TSS) ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hour, but limited for maximum Six times during any 30-day moving period. ❑ When any of the (BOD, COD, TSS) monitored quality parameters, except pH, of effluent discharge deviates from the norm by >100% for Eight (8) consecutive readings. ❑ When parameters observed values are consistent and stable without even minimum deviation of +/- 5% continuously for > 48 hours, excluding pH.	 Yellow (Level-I)	➢ Prepare logfile for alerts and the deviation. Investigate and record the apparent cause of the deviation and corrective action taken within 24 hrs. ➢ These records are required to produce to SPCB / CPCB during their inspections. ➢ Parameter(s) validation is required at stations. ➢ Record the observations on the influent/ effluent characteristics during the past 24 hours. ➢ Check the Internet / Power connectivity /Sensor defect of the equipment and restore it accordingly.	Auto generated Alert Letter/ E-mail.

Deviation	Alert	Action by Industry	Regulator's Action
Stack PM, SO2, NOx & CO ❑ Exceedance by >average 25% of 15 minutes average parameter (s) from permissible limit for 8 times/day. (PM, SO2, NOx,) ❑ **Alerts for Exceedance due to plant, boiler or equipment's start or Stop must be excluded (Logs must be recorded and special note to be sent to SPCB / CPCB in this regard after generation of yellow alert)** ❑ When PM emission deviates from the norm by >60% for Eight (8) consecutive readings or SO2, NOx by >25% for eight (8) consecutive readings ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hour, but limited for maximum Six times during any 30-day moving period. ❑ **When parameters observed values are consistent and stable without even minimum deviation of +/- 2% continuously for > 48 hours**.	 Yellow (Level-I)	➢ Cancellation of yellow alert, if alert is generated for exceedence due to plant start-stop. Logs must be recorded and special note to be sent to SPCB / CPCB in this regard after generation of yellow alert within 24 hrs. ➢ SMS alert for internet/power failure should be configured in system ➢ From industry server, data is transmitted smoothly to CPCB / Supplier server however sometimes data is not shown/ reflected on CPCB server. In these circumstances, industry is allowed to send the proof of the same to CPCB through mail and it may be considered.	Auto generated Alert Letter/ E-mail.

Live Data Deviations	Alert	Action by Industry	Regulator's Action
ETP – EQMS ❑ When more than 36 (10%) Yellow alerts are issued during any 30-day moving period. ❑ When internet / power connectivity / sensor error of equipment failed continuously for 72 hours ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hours, but limited for maximum 12 times during any 30-day moving period. ❑ When any of the (BOD, COD, TSS,) monitored quality parameters, except pH of effluent discharge deviates from the norm by >100% for Thirty Two (32) consecutive readings. (4 Yellow alerts for >100% exceedance) ❑ When parameters observed values are consistent and stable without even minimum deviation of +/- 5% continuously for > 72 hours, excluding pH..	 Orange (Level-II)	➢ Immediately take actions to correct the deviation during each Yellow alert in ETP / process correction required. Record deviation and keep for reference for SPCB / CPCB. Inform SPCB /CPCB about the deviation and corrective actions taken, if required. ➢ Check the Internet / Power connectivity /Sensor defect of the equipment and restore it accordingly. Inform CPCB / SPCB accordingly for the error in equipment / connectivity.	Auto generated Alert Letter/ E-mail. Reply to be submitted to CPCB / SPCB through Mail.

Live Data Deviations	Alert	Action by Industry	Regulator's Action
Stack PM, SO2, NOx & CO ❑ When more than 36 (10%) Yellow alerts are issued during any 30-day moving period. ❑ When any parameter PM deviates from the norm by >60% for Thirty-two (32) consecutive readings or SO2, NOx, CO deviates from norm by >25% for Thirty two consecutive readings or (4 Yellow alerts for >60% exceedence or 25% exceedance) ❑ When internet / power connectivity / sensor error of equipment failed for 72 hours ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hour, but limited for maximum 12 times during any 30-day moving period. ❑ **When parameters observed values are consistent and stable without even minimum deviation of +/- 2% continuously for > 72 hours**.	 Orange (Level-II)	➢ Immediately take actions to correct the deviation during each Yellow alert in APCDs / process correction required. Record deviation and keep for reference for SPCB / CPCB. Inform SPCB /CPCB about the deviation and corrective actions taken, if required. ➢ Check the Internet / Power connectivity /Sensor defect of the equipment and restore it accordingly. Inform CPCB / SPCB accordingly for the error in equipment / connectivity.	Auto generated Alert Letter/ E-mail. Reply to be submitted to CPCB / SPCB through Mail.

Live Data Deviations	Alert	Action by Industry	Regulator's Action
ETP - EQMS ❑ 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 144 hours ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hours, but limited for maximum 18 times during any 30-day moving period. ❑ When any of the (BOD, COD, TSS) monitored quality parameters, except pH, of effluent discharge deviates from the norm by >100% for Ninety-Six (96) consecutive readings. (12 Yellow alerts for >100% exceedance) ❑ When parameters observed values are consistent and stable without even minimum deviation of +/- 5% continuously for > 144 hours, excluding pH.	 Red (Level-III)	➢ Check the Internet / Power connectivity /Sensor defect of the equipment and restore it accordingly. Inform CPCB / SPCB accordingly for the error in equipment / connectivity. ➢ Take corrective action and inform SPCB / CPCB for deviations. Record the observations on the influent characteristics during the past 24 hours. Submit the action taken report along with reasons for deviation in the ETP system	Auto generated Warning Letter/ Email. Reply to be submitted to CPCB / SPCB through Mail.

Live Data Deviations	Alert	Action by Industry	Regulator's Action
Stack PM, SO2, NOx & CO ❑ When more than 72 (20%) Yellow alerts are issued during any 30-day moving period. ❑ When internet / power connectivity / sensor error of equipment failed for 144 hours ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hour, but limited for maximum 18 times during any 30-day moving period. ❑ When PM discharge deviates from the norm by >60% for Ninety-six (96) consecutive readings (12 Yellow alerts for >60% exceedence) and SO2, Nox & CO deviates by >25% for Ninety-Six (96) consecutive readings ❑ **When parameters observed values are consistent and stable without even minimum deviation of +/- 2% continuously for > 144 hours.**	 Red (Level-III)	➢ Check the Internet / Power connectivity /Sensor defect of the equipment and restore it accordingly. Inform CPCB / SPCB accordingly for the error in equipment / connectivity. ➢ Take corrective action and inform SPCB / CPCB for deviations. Record the observations on the influent/ effluent characteristics during the past 24 hours. Submit the action taken report along with reasons for deviation in the APCDs/ processes.	Auto generated Warning Letter/ Email. Reply to be submitted to CPCB / SPCB through Mail.

Live Data Deviations	Alert	Action by Industry	Regulator's Action
ETP - EQMS ❑ When internet / power connectivity / sensor error of equipment failed continuously for >7 days ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hours, for more than 24 times during any 30-day moving period. ❑ When more than One Red category alerts have issued during any 30 days moving period. ❑ When any of the (BOD, COD, TSS) monitored quality parameters, except pH, of effluent discharge deviates from the norm by >100% for One hundred ninety two (192) consecutive readings. (24 Yellow alerts for >100% exceedence) ❑ When pH of effluent discharge deviates from the norm and pH observed <4 or >12. ❑ When parameters observed values are consistent and stable without even minimum deviation of +/- 5% continuously for > 7 days. , excluding pH.	 Purple (Level-IV)	➢ Industry shall immediately impound any further discharge of treated effluent ➢ Corrective measures shall be taken immediately. ➢ Root-Cause analysis and action taken report (ATR) shall be submitted to SPCB / CPCB	Auto generated letter seeking explanation within 15 days. Reply to be submitted to CPCB / SPCB through Mail, followed by physical verification by CPCB/ SPCB

Live Data Deviations	Alert	Action by Industry	Regulator's Action
Stack PM, SO2, NOx & CO ❑ When more than One Red category alerts have issued during any 30 days moving period. ❑ When PM discharge deviates from the norm by >60% for One hundred ninety-two (192) consecutive readings (24 Yellow alerts for >60% exceedance) and SO2, Nox & CO deviates by >25% for One hundred Ninety-Two (192) consecutive readings ❑ When internet / power connectivity / sensor error of equipment failed for >7 days ❑ When internet / power connectivity /sensor error of equipment failed continuously for Four hour for more than 24 times during any 30-day moving period. ❑ **When parameters observed values are consistent and stable without even minimum deviation of +/- 2% continuously for > 7 days**.	 Purple (Level-IV)	➢ Mill shall immediately impound any further emission ➢ Corrective measures shall be taken immediately. ➢ Root-Cause analysis and action taken report (ATR) shall be submitted to SPCB / CPCB	➢ Auto generated letter seeking explanation within 15 days. ➢ Reply to be submitted to CPCB / SPCB through Mail. ➢ If required, physical investigations by SPCB/ CPCB or any third party assigned by CPCB.