



PENGIRAAN FLP & SISTEM LP ONLINE 15 JULAI 2025

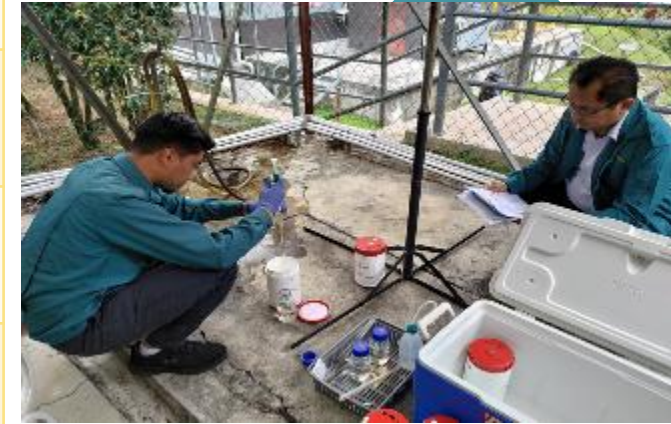
Agenda

- Pemahaman Per. 17 PUB, 2014
- Sistem LP Online
- Final tips & takeaways



Analisa pemahaman PUB, 2014 mengikut peraturan

	Air Sisa	Pencemar Udara
Bilangan punca	1 punca / industri	>1 punca / industri
Proses persampelan	Grab / Composite sampling	Stack sampling (iso-kinetic) CEMS / PEMS
Kaedah persampelan	APHA	USEPA, ISO, MS, GD, etc
Personel persampelan	Individu bertauliah / JAS	Individu bertauliah ???
Analisa	Makmal bertauliah / JKM	Makmal bertauliah ???
Pembuktian	JAS / JKM	JAS / ???
Kos	Rendah - Moderat	Moderat - Tinggi



REGULATION 17

Continuous Emission Monitoring System

A. HEAT AND POWER GENERATION

1. Boilers

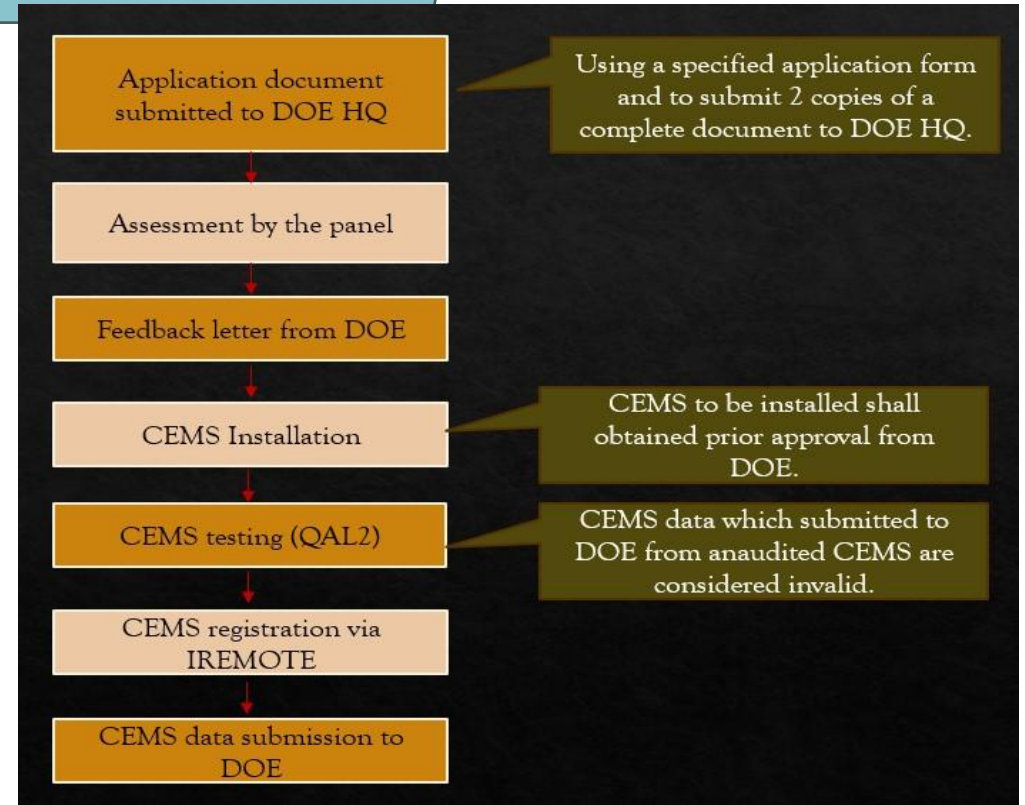
The O₂ reference content is 6% for solid fuels and 3% for others.

Fuel type	Pollutant	Capacity	Limit value	Monitoring
Solid and liquid fuels	Sum of SO ₂ and SO ₃ , expressed as SO ₂	> 10 MW _e	500 mg/m ³	Continuous*
	Sum of NO and NO ₂ expressed as NO ₂	> 10 MW _e	500 mg/m ³	Continuous*
	Hydrogen chloride (HCl)	> 10 – <100 MW _e	200 mg/m ³	Periodic
	Hydrogen chloride (HCl)	≥100 MW _e	100 mg/m ³	Periodic

- 1) To carry out continuous monitoring based on the respective schedule
- 2) Measuring device shall follow specification by DOE
- 3) Daily average shall not exceed emission limit value while half hourly average shall not exceed 2 times ELV.
- 4) Make evaluation of the CEM readings in a calendar year
- 5) Submit result of evaluations with 3 months after end of calendar year.
- 6) Notify DOE within 24 hours if exceed ELV.
- 7) Notify DOE within 1 hour if CEMS failure is encountered.



CEMS INSTALLATION AND OPERATING PROCEDURE



COMPLIANCE REQUIREMENTS FOR CEMS OPERATION

Regulation 17 (3) of CAR 14 is simplified as below :

- **Daily average** of CEMS reading cannot exceed Emission Limit Values; and
- **Half hourly average** of CEMS reading cannot exceed 2 times of the Emission Limit Values.

Plant Type: Power Generation Plant
Equipment : Combustion Turbine

2. Combustion turbines

The O₂ reference content is 15%.



Fuel type	Pollutant	Capacity at ISO conditions	Limit value	Monitoring
Gaseous fuels	Sum of NO and NO ₂ expressed as NO ₂	> 10 MW _e	150mg/m ³	Continuous*
	Carbon monoxide (CO)	> 10 MW _e	100 mg/m ³	Continuous*
Liquid fuels	Sum of NO and NO ₂ expressed as NO ₂	> 10 MW _e	200 mg/m ³	Continuous*
	Carbon monoxide (CO)	> 10 MW _e	100 mg/m ³	Continuous*

*Averaging time for continuous monitoring is 30 minutes

Parameter : NO₂
ELV : 150 mg/m³

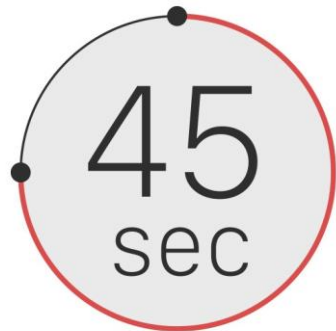
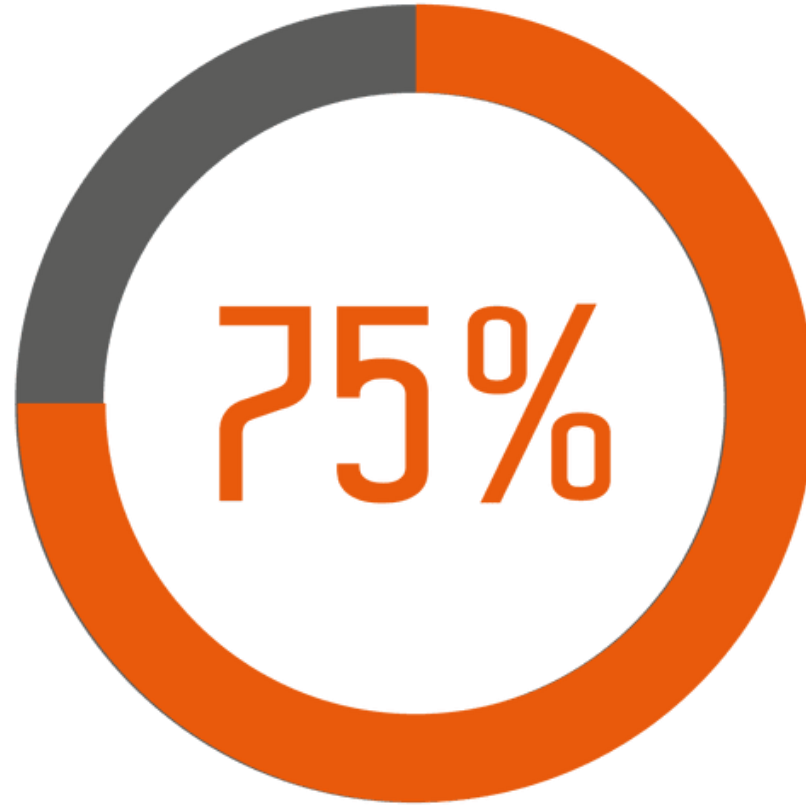


(Daily aver. limit = 150 mg/m³ ; ½ hourly aver. limit = 300 mg/m³)

CASE	CEMS READINGS		COMPLIANCE STATUS
	DAILY AVERAGE (mg/m ³)	½ HOURLY AVERAGE (mg/m ³)	
1 ST	100	100	COMPLY
2 ND	100	140	COMPLY
3 RD	140	330	NOT COMPLY
4 TH	200	280	NOT COMPLY
5 TH	250	350	NOT COMPLY

COMPLIANCE REQUIREMENTS FOR CEMS OPERATION

2 ELV





Q&A sessions



Terima kasih

Seksyen Punca Tetap & Bunyi Bising
Bahagian Udara