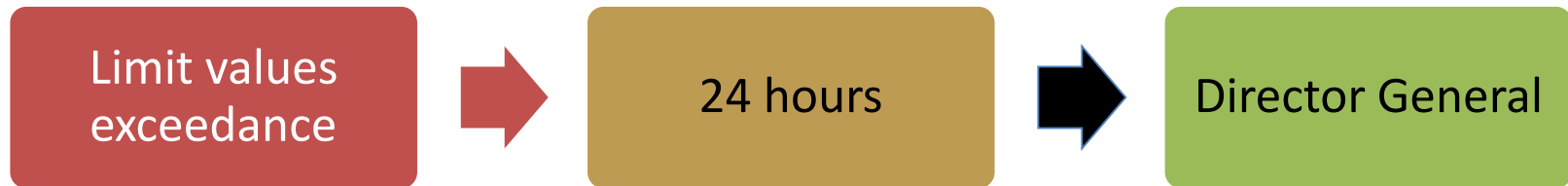


REGULATION 17

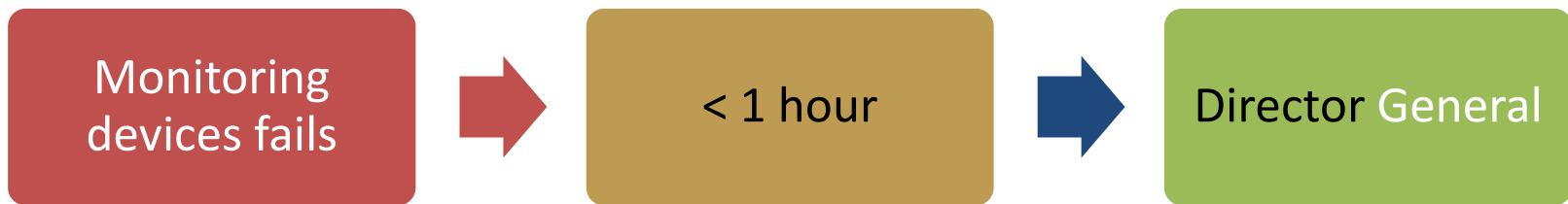
CONTINUOUS EMISSION MONITORING

Notify DOE if:

Regulation 17(6)



Regulation 17(7)



PERATURAN 17

CEMS – KAEDAH MENILAI PEMATUHAN HAD

(3)

tiada purata harian yang melebihi standard pengeluaran,
dan tiada purata bagi setengah jam yang melebihi standard
pengeluaran lebih daripada dua kali

Premis perlu patuh : 50 mg/m³

CONTOH KES	KEPUTUSAN		PEMATUHAN
	PURATA HARIAN (mg/m ³)	PURATA SETENGAH JAM (mg/m ³)	
PERTAMA	40	40	PATUH
KEDUA	40	70	PATUH
KETIGA	40	130	TIDAK PATUH
KEEMPAT	65	80	TIDAK PATUH
KELIMA	65	130	TIDAK PATUH

REGULATION 18 EMISSION DECLARATION



**BORANG AS/PUB/EMISSION
FORM AS/PUB/EMISSION**

I

**PENGISYTIHARAN PENGELUARAN PUNCA
PENCEMARAN UDARA
DI BAWAH PERATURAN 18, PERATURAN-PERATURAN
KUALITI ALAM SEKELILING (UDARA BERSIH), 2014**

*EMISSION DECLARATION OF AIR EMISSION SOURCES
UNDER REGULATIONS 18
OF THE ENVIRONMENTAL QUALITY (CLEAN AIR)
REGULATION, 2014*

*Sila kemukakan borang yang telah lengkap diisi
ke pejabat Jabatan Alam Sekitar Negeri di mana projek/premis ini
ditempatkan.*

*Please submit the completed form to the Department of
Environment State Office where the project/premise is located.*

**JABATAN ALAM SEKITAR
KEMENTERIAN SUMBER ASLI DAN ALAM SEKITAR
DEPARTMENT OF ENVIRONMENT
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT**

ANNUAL REPORT FOR PREMISES LISTED IN 1ST SCHEDULE

**NEW
PREMISES**



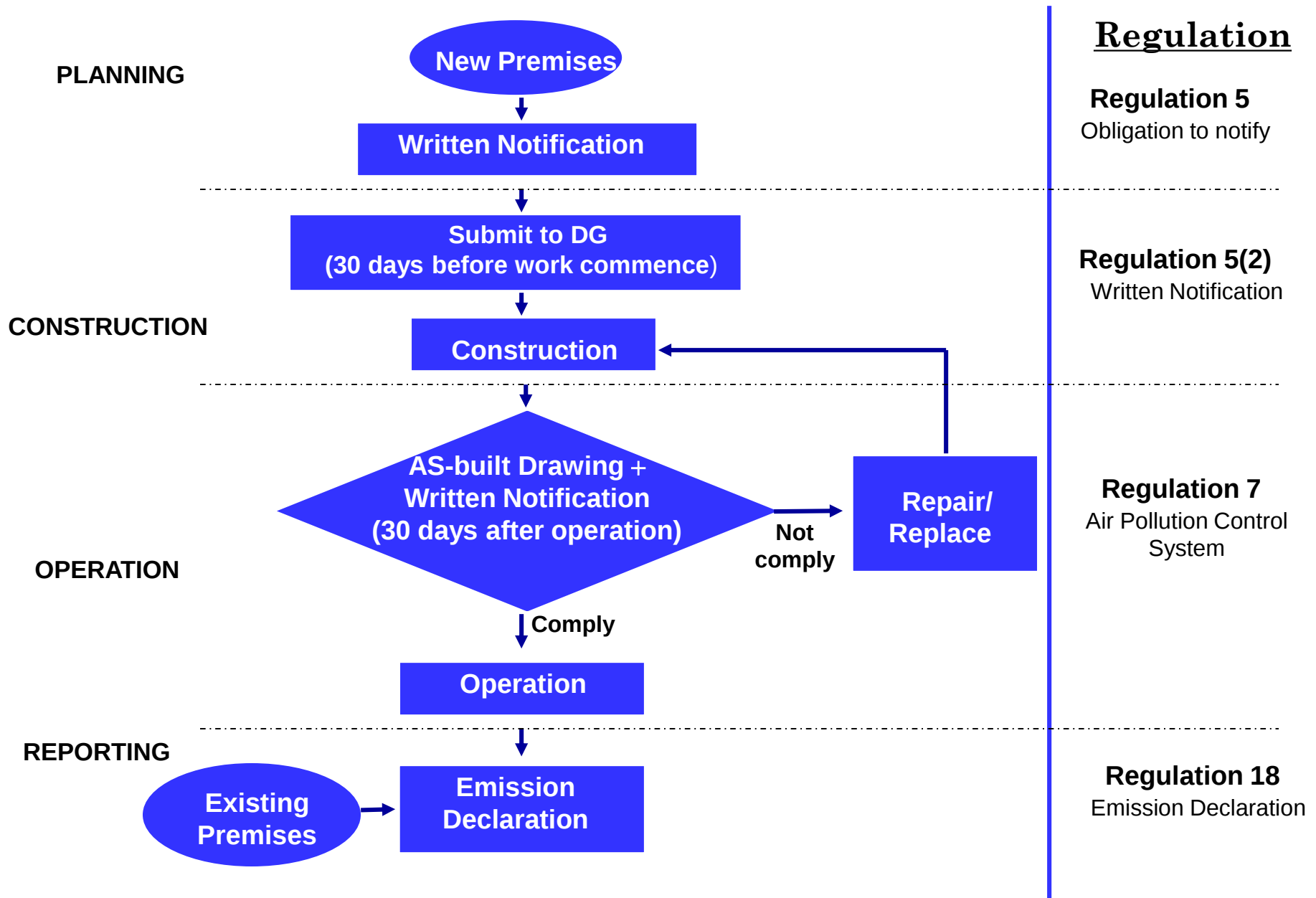
1st Declaration

12 months after
operation but no later
than 18 months

**EXISTING
PREMISES**

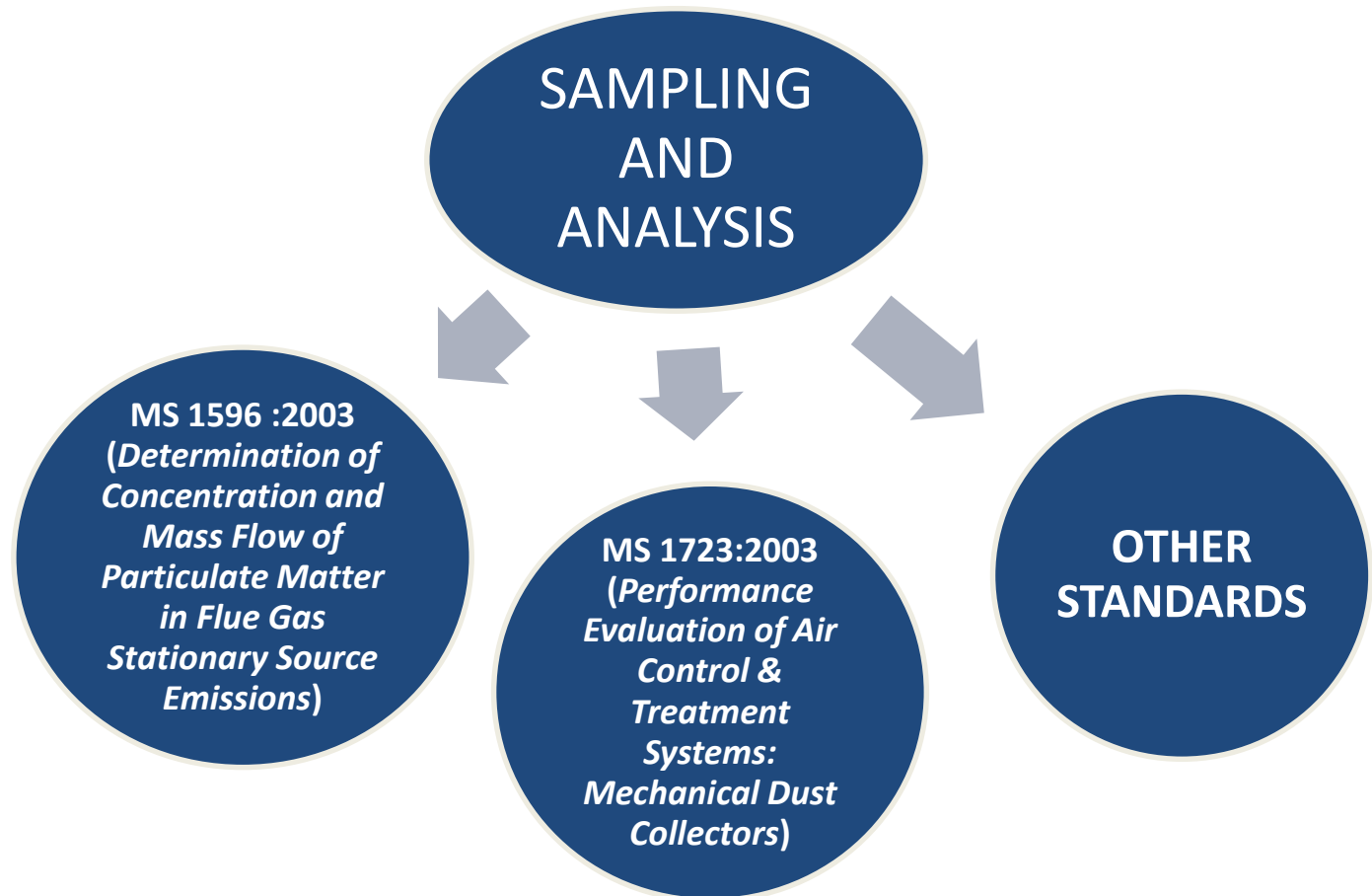


No later than 18 months
after CAR come into
operation



REGULATION 23

STANDARD METHOD OF SAMPLING AND ANALYSIS OF EMISSIONS



REGULATION 24: PROHIBITION ORDER

Undesirable occurrence as specified in the Sixth Schedule but not limited to the list.

REGULATION 25: LICENCE REQUIRED TO CONTRAVENE ACCEPTABLE CONDITIONS FOR EMITTING EMISSIONS INTO ATMOSPHERE

Application as in Environmental Quality (Licensing) Regulations 1977

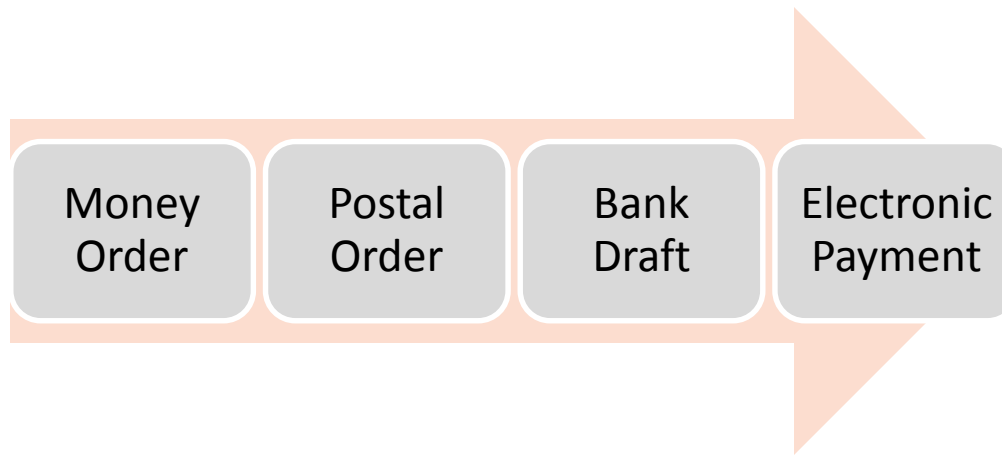
REGULATION 26: SCHEDULE OF REQUIRED ACTIONS

DG may issue a schedule of required actions to comply with a standard:-

- within a fixed period of time; and
- setting an interim standards which may require reduced levels of operation pending the installation of adequate control equipment and may establish a series of deadlines for the installation of specific control equipment.

REGULATION 27 FEES

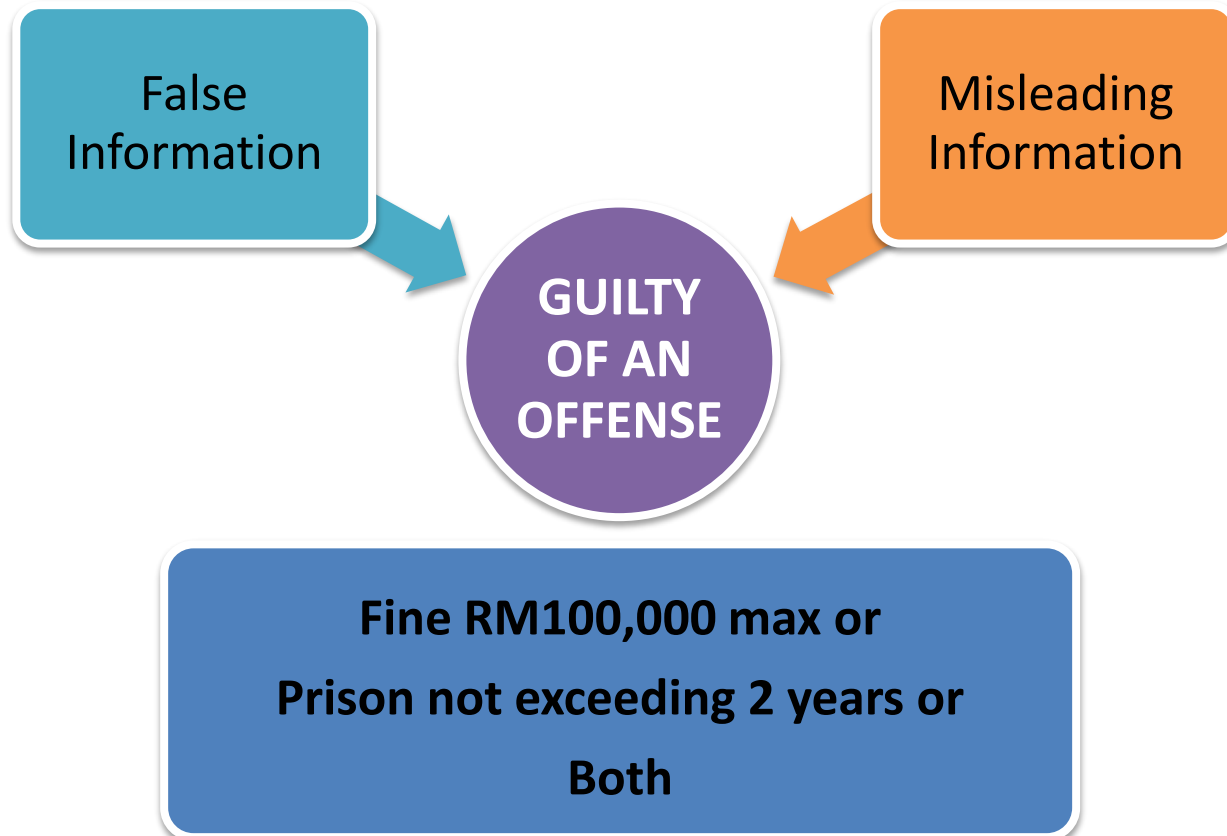
**LICENSE
APPLICATION
UNDER
REGULATION**



**RM 1000
FEE**

REGULATION 28

FALSE OR MISLEADING INFORMATION



REGULATION 29 PENALTY

Fine : RM100,000 max

OR

Prison not exceed 2 years

OR

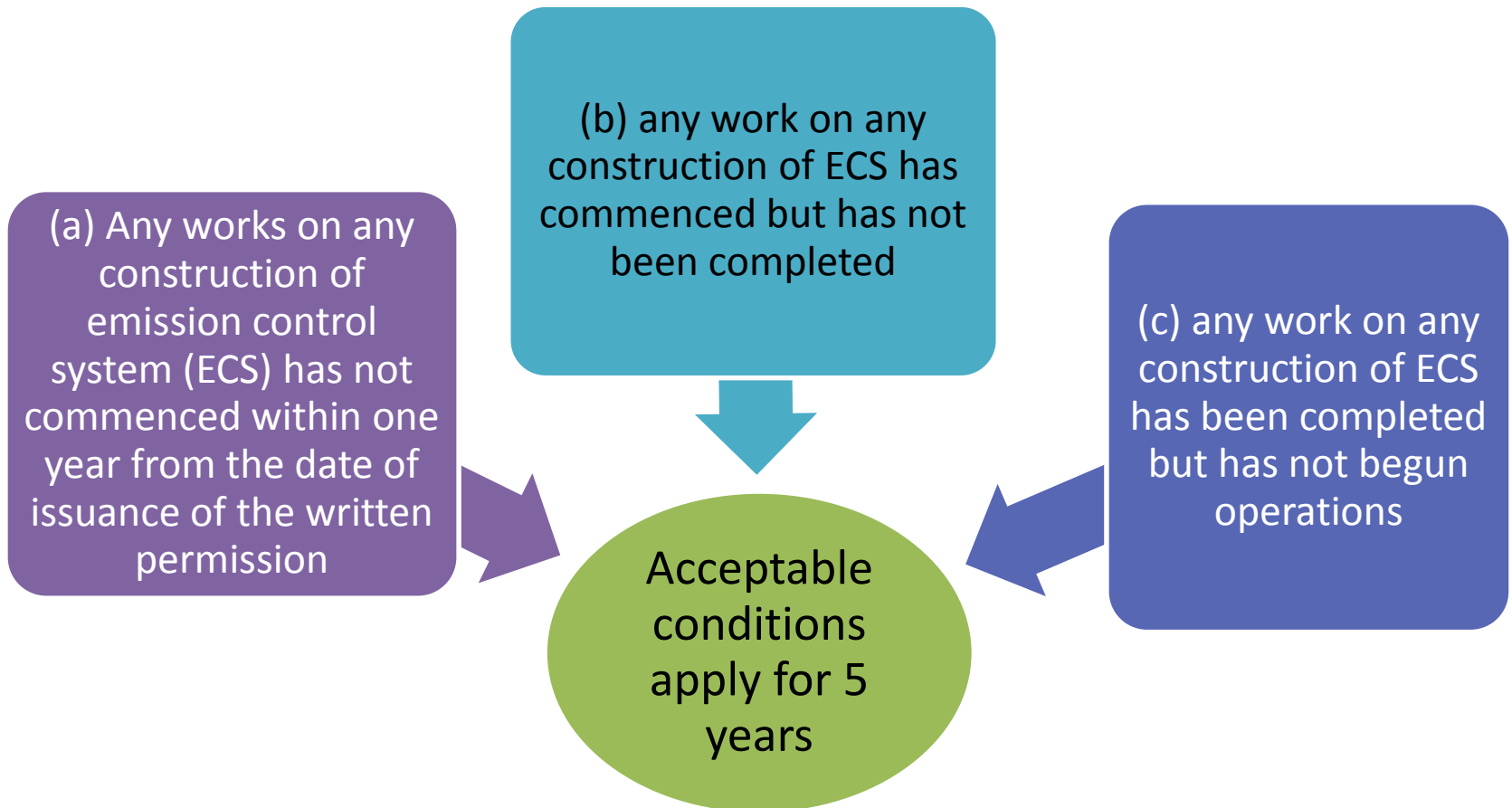
Both

REGULATION 30 REVOCATION

The Environmental Quality (Clean Air) Regulations 1978 is revoked

The Environmental Quality (Dioxin and Furan) Regulations 2004 is revoked

REGULATION 30 REVOCATION



2. Introduction to Environmental Quality (Clean Air) Regulation 1978

Commencement: 1 October 1978

Intention: To control emission of air impurities into open air

Amended by: PU(A)40/1979,309/2000

Take note of the amended regulations (i.e. Regulation 2, 11, 12, 13, 49, 56, 58 and Fifth Schedule)

Clean Air Regulations 1978

8 Parts and 5 Schedules

- Part 1 : Preliminary (R1-R3)
- Part II : Industrial Facilities adjacent to residential areas (R4-R6)
- Part III : Burning of Waste (R7-R13)
- Part IV : Dark Smoke (R14-R19)
- Part V : Air Impurities (R20-R43)
- Part VI : Miscellaneous Provisions (R44-R55)
- Part VII : Penalty and Fees (R56-R57)
- Part VIII : Compounding of Offences (R58-R59)

Environmental Quality (Clean Air) Regulations, 1978

Regulation 8

Erection of incinerator to obtain prior approval

- No person shall erect, construct, install, resite or alter any incinerator without prior written approval from the Director General

Environmental Quality (Clean Air) Regulations, 1978

Regulation 36

Erection of [fuel burning equipment](#)

- Any person intending to erect, install, resite or alter equipment, plant or facility used for the purpose of heating or generation of power that is rated to consume pulverised fuel or any solid fuel at **30 kg** or more per hour or any liquid or gaseous matter at **15 kg** or more per hour, shall obtain prior written approval from the Director General

Environmental Quality (Clean Air) Regulations, 1978

Regulation 38

Erection of chimney

- Any person intending to erect, install, resite or alter any chimney, from or through which air impurities may be emitted or discharge shall obtain prior written approval from the Director General. This requirement shall not apply to a chimney serving private

3.0 Ambient Air Quality Guideline

AMBIENT AIR QUALITY GUIDELINES

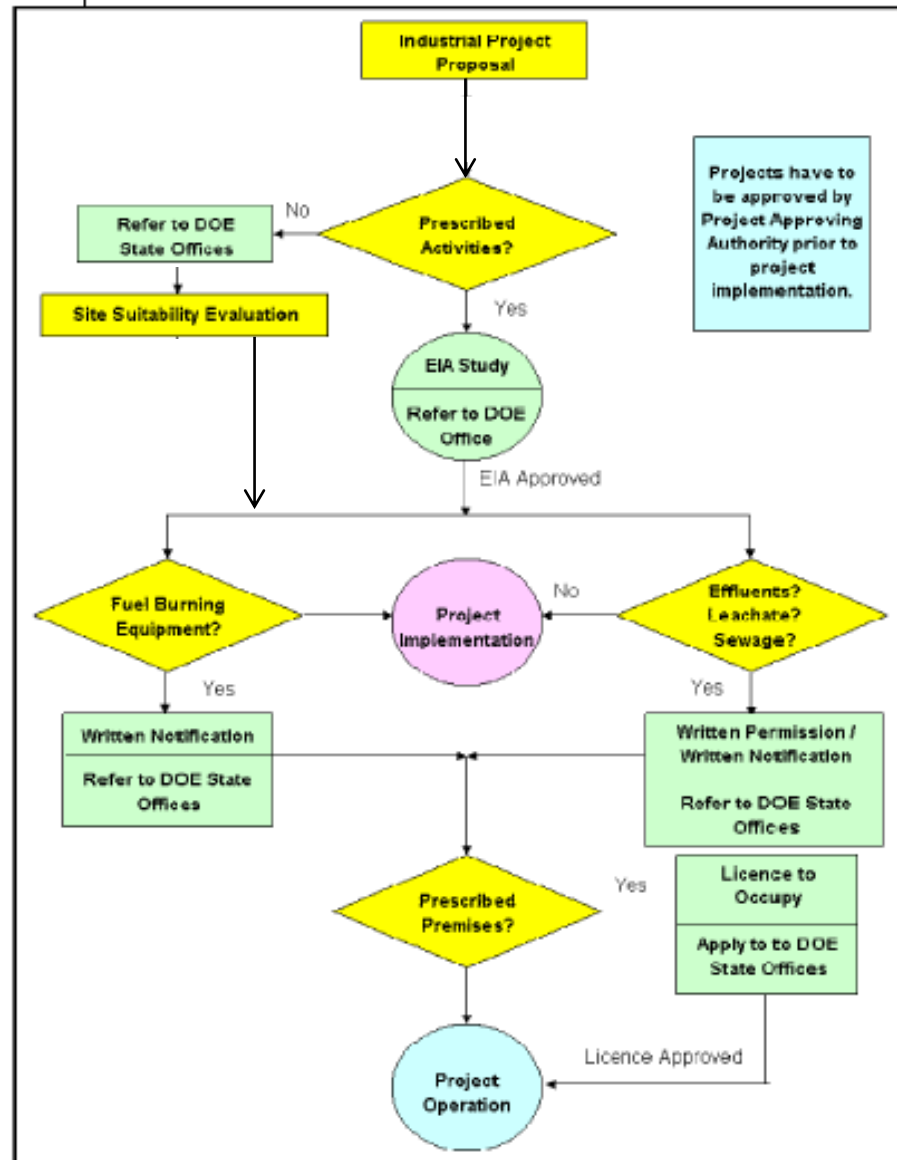
Pollutant	Averaging time	ppm	$\mu\text{g}/\text{m}^3$
Ozone	1 hour	0.10	200
	8 hours	0.06	120
Carbon monoxide # (mg/m^3)	1 hour	30	35
	8 hours	9	10
Nitrogen Dioxide	1 hour	0.17	320
	8 hours	0.04	
Sulfur Dioxide	10 minutes	0.19	500
	1 hour	0.13	350
	24 hours	0.04	105
TSP	24 I hour		260
	1year		90
PM10	24 hour		150
	1 year		50
Lead	3 months		1.5

(at $T = 25^\circ\text{C}$, $P = 1 \text{ Atm}$)

4.0 Written Notification Procedure

- Environmental Impact Assessment (EIA) or Pre-Siting and Evaluation Process (PAT)
- APCS Processing Flow Chart
- Client Charter

APPLICATION PROCEDURE FOR ENVIRONMENTAL REQUIREMENTS IN MALAYSIA



STEP 1

- Site Suitability Evaluation (for non-Prescribed Activities).
- EIA Approval (for Prescribed Activities).

STEP 2

Activities subject to air and water pollution control:

- Written Notification (Air).
- Written Notification (Sewage, Industrial Effluent, Leachate).
- Written Approval (Prescribed Premises: Crude Palm Oil Mills, Raw Natural Rubber Mills, Scheduled Wastes Facilities)

STEP 3

Licence to occupy:

- Crude Palm Oil Mills.
- Raw Natural Rubber Factories.
- Scheduled Waste Treatment and Disposal Activities
- Prescribed Conveyance

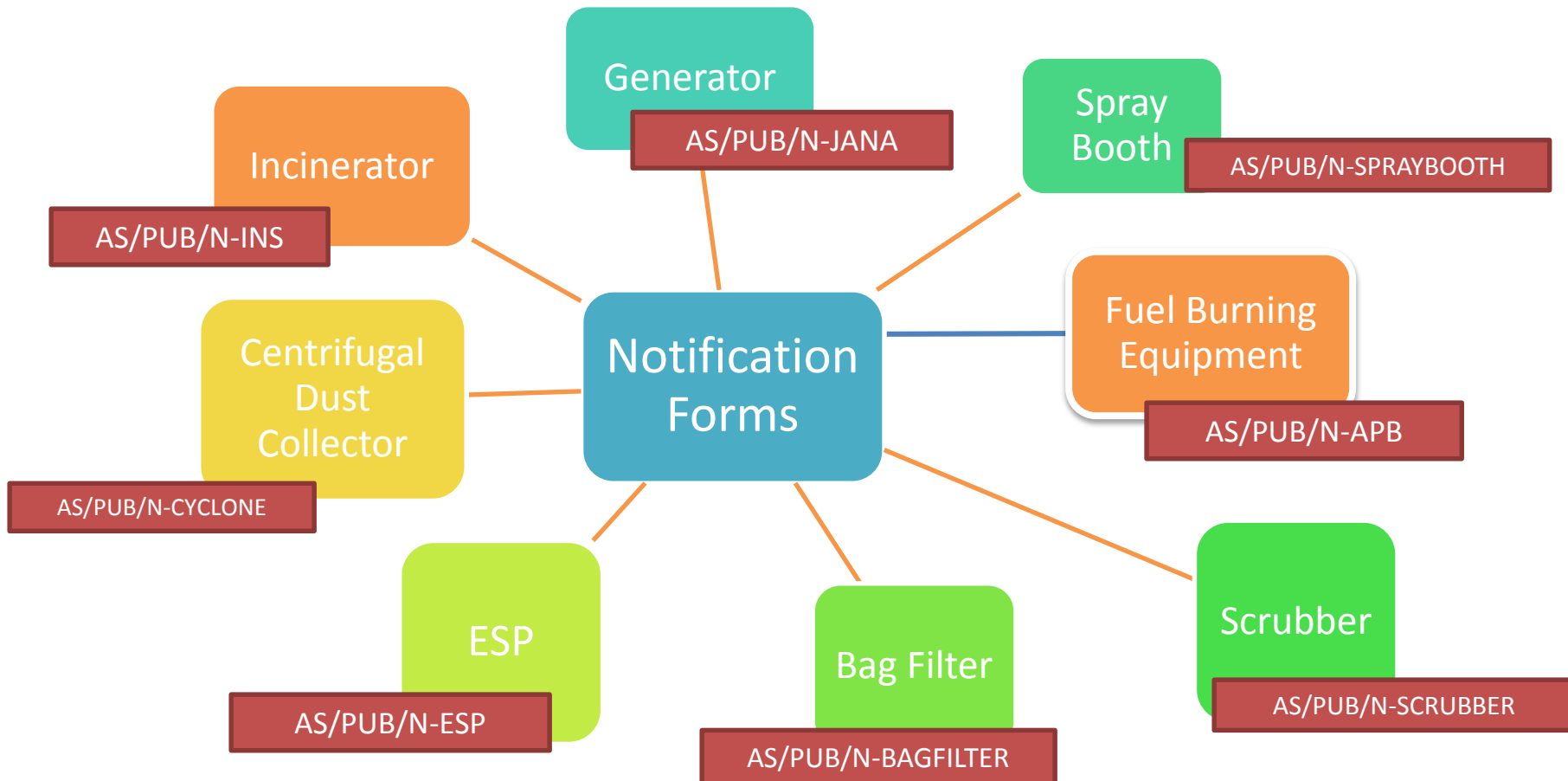
Konsep Standard dalam Peraturan Udara Bersih

- Emission standard (had pengeluaran)
- Technology standard
- Operating standard

Konsep Standard dalam Peraturan Udara Bersih

- Emission standard (had pengeluaran)
 - Had spesifik mengikut sektor contoh habuk 150 mg/m³
- Technology standard
 - Dinyatakan dalam dokumen BAT, Guidance Document Design of Fuel Burning Document and Air Pollution Control System
- Operating standard
 - Dokumen pengawasan prestasi Alat Kawalan Pencemaran Udara

Written Notification Forms



J. DECLARATION

Saya pemohon/agen* yang diberi kuasa bagi pemohon, dengan ini mengaku bahawa segala maklumat yang diberi di dalam borang ini adalah benar dan betul sepanjang pengetahuan dan kepercayaan saya.

I the applicant/authorised agent of the applicant, hereby declare that all the information given in this application is to the best of my knowledge and belief true and correct.*

Tarikh; _____ Tandatangan pemohon/*: _____
Date Agen yang diberi kuasa
Signature of applicant/*
Authorised agent

Nombor Telefon/Telephone No.: _____ Nama Penuh: _____
Full Name
Nombor Kad Pengenalan: _____
Identity card no.

Nombor Faks/Fax No: _____ Jawatan: _____
Designation

Cop Rasmi Syarikat: _____
Official Stamp of the Company

Untuk dan bagi pihak: _____
For and on behalf of: _____

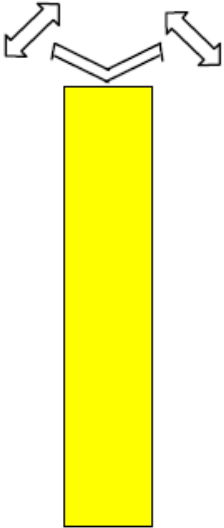
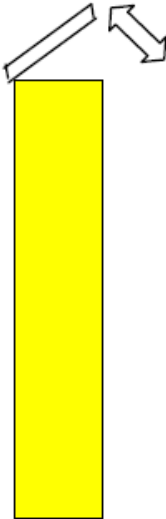
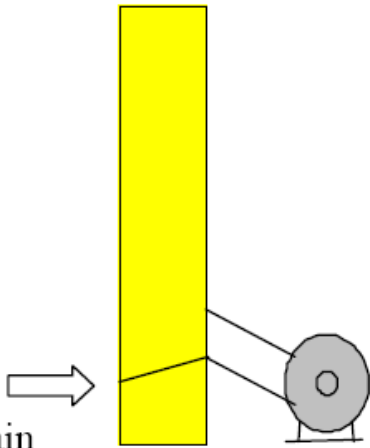
Nombor Telefon .: _____ Nombor Faks: _____
Telephone No. Fax No.

* Potong yang mana tidak berkenaan
Delete whichever is not applicable



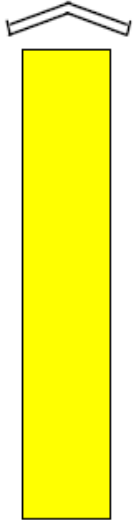
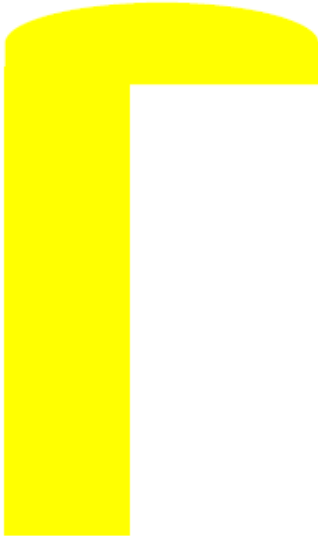
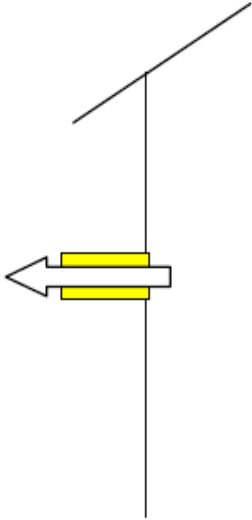
Stack design – rain cap

Example of Acceptable Stack Design

		
Stack A	Stack B	Stack C
Acceptable stack design with rain protection without obstructing air flow. The rain protection on stack A and B pushed up when the fan is on. Stack C is design so that water drains out the side of the stack		

Stack design – rain cap

Example of Unacceptable Stack Design

		
Stack A	Stack B	Stack C
The cap on Stack A obstructs vertical discharge of air contaminants. Stack B, a goose neck, also prevents vertical discharge. Stack C, which comes out of the building horizontally, simply does not provide for vertical discharge.		

Operation of Industries / Air Pollution Control Equipment

- performance monitoring
- record keeping (log book)
- competent operator
- stack sampling
- continuous emission monitoring system (CEMS)

Operation of Industries / Air Pollution Control Equipment

- **Important of performance monitoring**
- To ensure **smooth** and **uninterrupted operation** of air pollution control system
- Helps **detect early** onset of deteriorating performance of control system
- Hence, **avoid unnecessary plant shutdown** and **costly enforcement penalties**
- From enforcement viewpoint, it is an acceptable surrogate to stack emission testing to **gauge compliance** with emission standards

Operation of Industries / Air Pollution Control Equipment

Regulatory record keeping requirements

- Essential for smooth operation of APCS, may lengthen its useful life and minimize emission
- May vary from one industry to another depending on **type** of manufacturing process being controlled, **size** of operation, **location** of industry.
- Performance monitoring data to be kept and made available to DOE officers for inspection
(examine **log books**)



Training Calendar for Industries

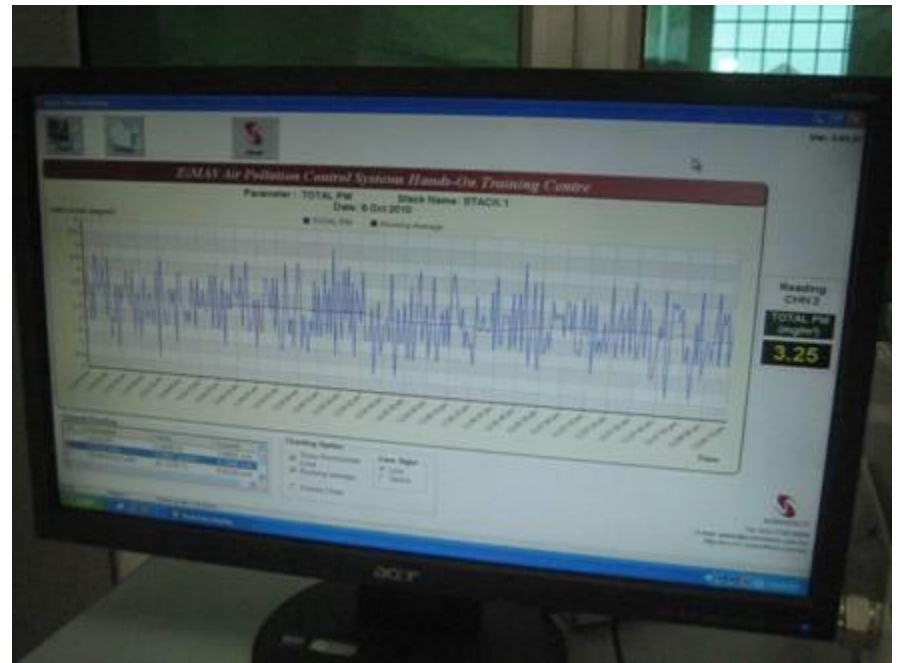
This course would:

- Enable participants to acquire knowledge and develop skills on how to implement a systematic and effective preventive maintenance and performance monitoring procedure for bag filters or scrubber that conforms with the DOE's latest requirement on **performance monitoring** of bag filters and scrubber.
- Enable participants to be **certified and qualified** as a **competent person** to operate bag filters or scrubber after complying with other requirements.
- Benefit the industry by minimizing the occurrence of breakdown of bag filter or scrubber that may result in non compliance with emission standards.



**Alamat:
No. 13, Jalan 9/4
Seksyen 9
43650 Bandar Baru Bangi**







7. Other Related Regulations

REGULATIONS

- Environmental Quality (Control of Petrol And Diesel Properties) Regulations 2007 - P.U.(A) 145/2007
- Environmental Quality (Control of Emission From Motorcycles) Regulations 2003 - P.U. (A) 464/2003
- Environmental Quality (Halon Management) Regulations 1999 - P.U.(A) 452/99
- Environmental Quality (Refrigerant Management) Regulations 1999 - P.U (A) 451/99
- Environmental Quality (Control of Emission From Petrol Engines) Regulations 1996 - P.U(A) 543/96
- Environmental Quality (Control of Emission From Diesel Engines) Regulations 1996 P.U (A) 429/96
- Environmental Quality (Motor Vehicle Noise) Regulations 1987 - P.U (A) 244/87
- Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations 1985 - P.U (A) 296/85
- Environmental Quality (Licensing) Regulations 1977 - (P.U.(A) 198/77)

ORDER

- Environmental Quality (Declared Activities) (Open Burning) Order 2003 - P.U.(A) 460/2003
- Environmental Quality (Delegation Of Powers) (Halon Management) Order 2000 - P.U.(A) 490/2000
- Environmental Quality (Prohibition Of The Use Of Controlled Substances In Soap, Synthetic Detergent And Other Cleaning Agents) Order 1995) Order 2005 - P.U.(A) 115/95
- Environmental Quality (Prohibition Of The Use Of Chlorofluorocarbons And Other Gases As Propellants And Blowing Agents) Order 1993 - P.U.(A) 434/93

Guidelines

- **Technical Guidance On: Performance Monitoring of Air Pollution Control Systems**
- **The Planning Guidelines for Environmental Noise Limits & Control**
- **The Guidelines for Noise Labeling and Emission Limits of Outdoor Sources**
- **The Planning Guidelines for Vibration Limits and Control**
- **Guideline for the installation & maintenance of Continuous Emission System (CEMS)**

Book
5



Technical Guidance
Document Series
Number:
DOE-APCS-5

TECHNICAL GUIDANCE ON

PERFORMANCE MONITORING OF AIR POLLUTION CONTROL SYSTEMS

DOE Malaysia
First Edition:
December 2006

FOR THE USE OF
THE INDUSTRIES AND
CONSULTANTS



THE PLANNING
GUIDELINES FOR

BOOK 1 OF 3

Environmental Noise Limits and Control



Department of Environment
Ministry of Natural Resources and Environment
Malaysia



THE PLANNING
GUIDELINES FOR

BOOK 3 OF 3

Vibration Limits and Control in the Environment



Department of Environment
Ministry of Natural Resources and Environment
Malaysia



GUIDELINES
FOR

BOOK 2 OF 3

Noise Labeling and Emission Limits of Outdoor Sources



Department of Environment
Ministry of Natural Resources and Environment
Malaysia



Malaysian Standard

- **MS1596:2003 - Determination of concentration and mass flow of particulate matter in flue gas for stationary source emissions**
- **MS1723:2003 – Performance evaluation of air pollution control and treatment system : Mechanical dust collectors**



MALAYSIAN STANDARD

MS 1596:2003

DETERMINATION OF CONCENTRATION AND MASS FLOW OF PARTICULATE MATTER IN FLUE GAS FOR STATIONARY SOURCE EMISSIONS

ICS: 13.040.40

Descriptors: stationary source emissions, particulate matter, flue gas, determination, gravimetric analysis

© Copyright

DEPARTMENT OF STANDARDS MALAYSIA

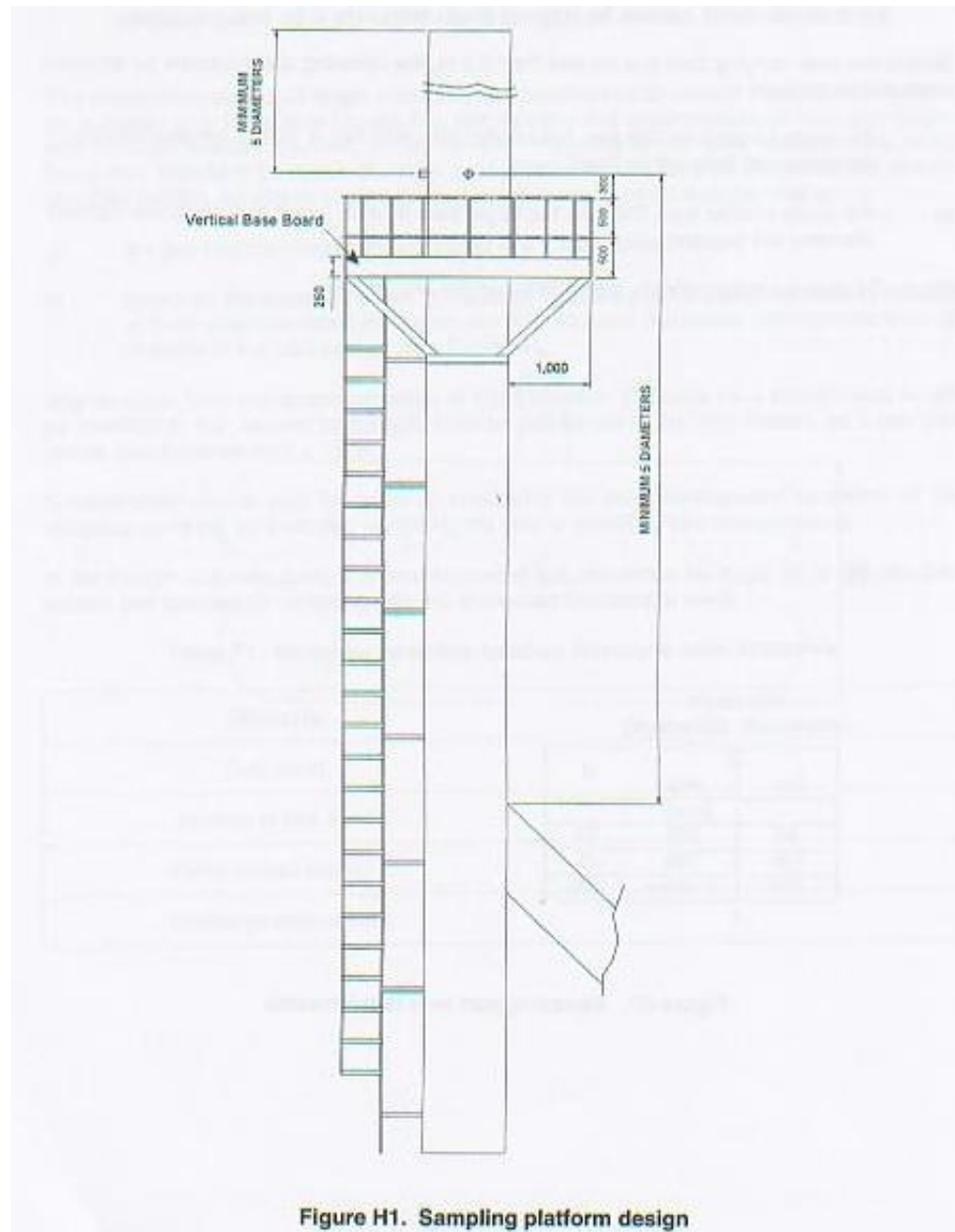


Figure H1. Sampling platform design



MALAYSIAN STANDARD

MS 1723:2003

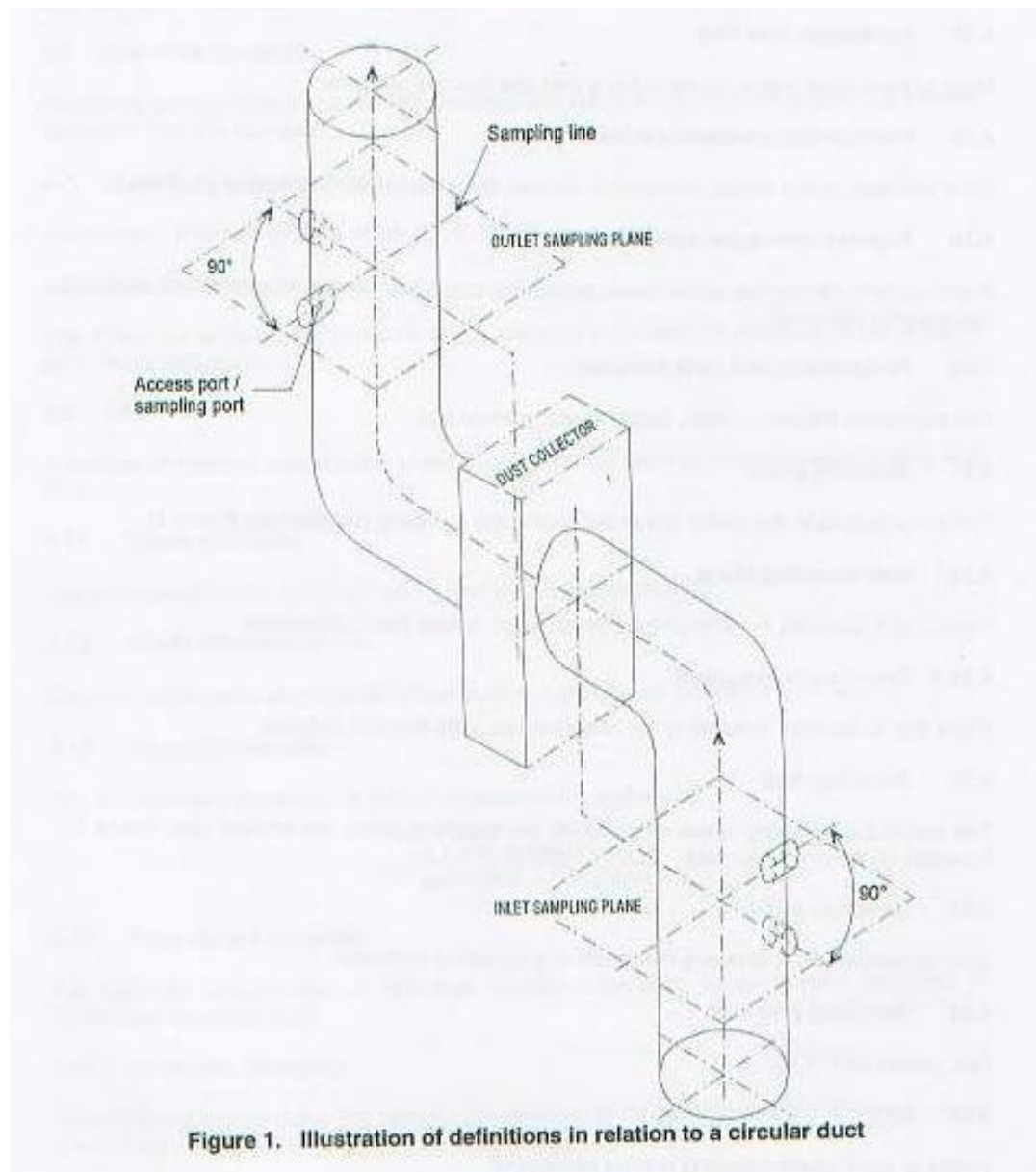
PERFORMANCE EVALUATION OF AIR POLLUTION CONTROL AND TREATMENT SYSTEMS: MECHANICAL DUST COLLECTORS

ICS: 13.040.40

Descriptors: air pollution control, performance evaluation, dust collectors, mechanical, testing procedure

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DEPARTMENT OF STANDARDS MALAYSIA



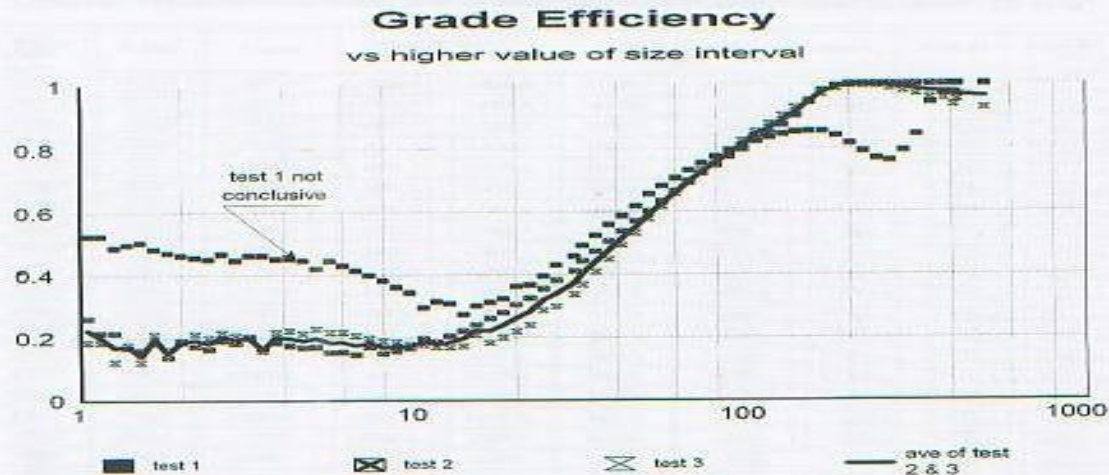


Figure A1. Graph of efficiency per particle size interval using the higher value of the particle size interval

Tests 2 and 3 show similar curves, with only mild differences in the ranges from 10 μm to 50 μm and above 300 μm . Test 1, however, shows a clear difference in the performance of the dust collector. It may indicate some difference in the condition of the dust collector between this and the other two tests. A third test is therefore necessary to conform with the required three representative tests (Clause 12).



MALAYSIAN STANDARD

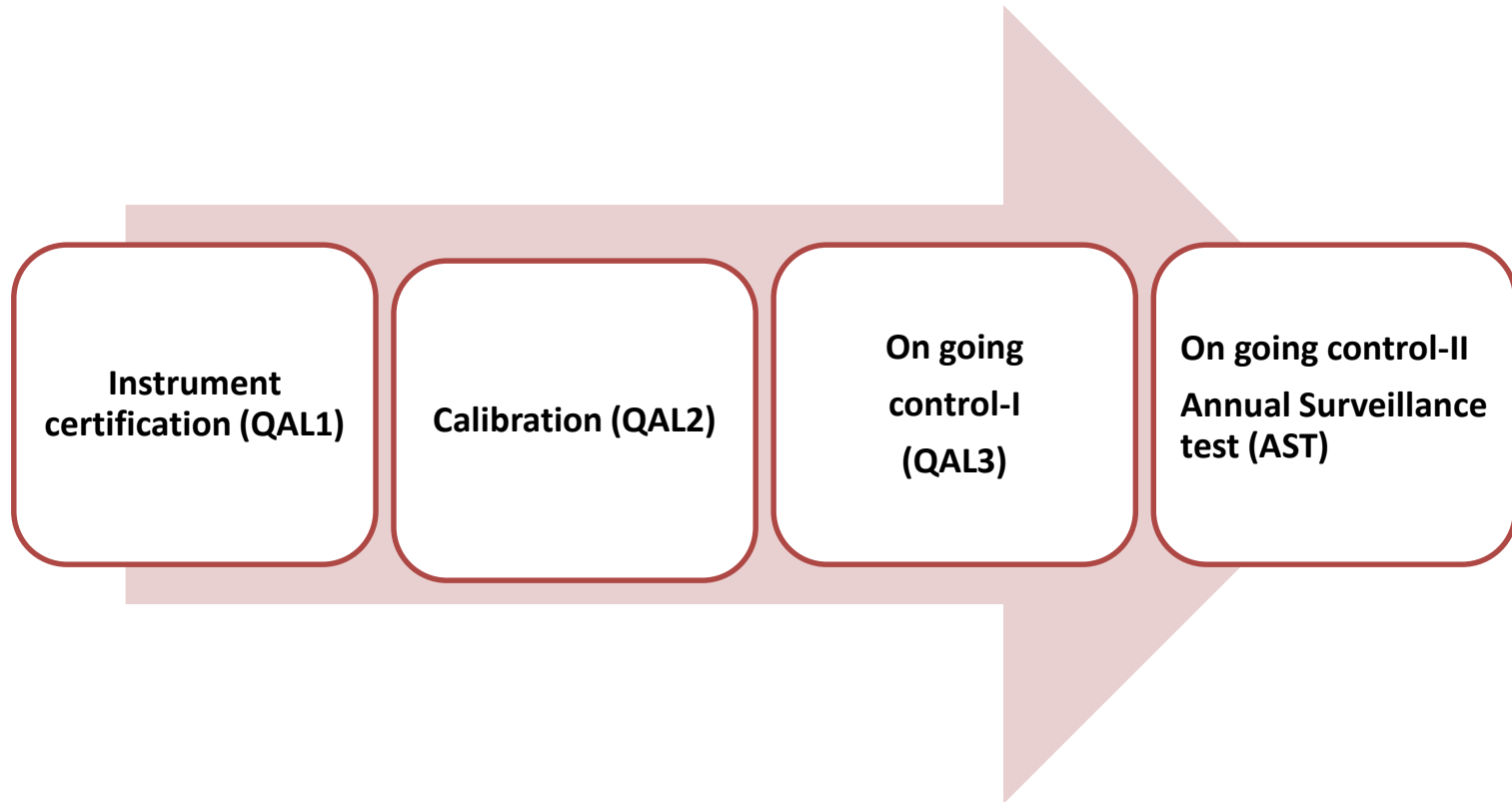
MS 2564:2014

**Performance criteria and test procedures
for continuous emission monitoring
systems (CEMS)**

ICS: 13.040.40

Description: air, quality, air pollution, continuous emission monitoring, performance criteria, test procedure

3 LEVELS TO ENSURE QUALITY (Quality Assurance Level-QAL)



PEMS

- Predictive Emission Monitoring System (PEMS) is an alternative to Continuous Emission Monitoring System (CEMS). CEMS is *hardware-based* monitoring system; PEMS is *software-based simulation*.
- **Software-based monitoring**
- Modelling +simulation
- Daily zero + span check
- Using process inputs

However PEMS is suitable for certain industry only

PEMS Technologies

- Parametric
- First principal
- Neural Network
- Statistical Hybrid

PEMS

PEMS need to comply with

- 40 CFR Part 60, PS-16
- 40 CFR Part 75, Subpart E

PEMS - Conditions of Approval

Quality Assurance

Test	Acceptability	Frequency
Sensor Evaluation	Daily Sensor Evaluation Check. Your sensor evaluation system must check the integrity of each PEMS input at least daily.	Daily
RAA	3-test average $\leq$ 3-test average $\leq 10\%$ of simultaneous analyzer or RM average	Each quarter except quarter when RATA performed
RATA	Same as for RA in Sec. 13.1 PS-16	Yearly in quarter when RAA not performed
Bias correction	If $d_{avg} \leq cc $	If bias test passed (no correction factor needed)
PEMS Training	If $F_{critical} \geq F$, $r \geq 0.8$	Optional after initial and subsequent RATAs
Sensor Evaluation Alert Test(optional)	Section 6.1.8 PS-16	After each PEMS training

Performed diagnostic test on each drive

Defrag each harddrive

Performed incremental database backup

Backup the database and archive

Perform PEMS hardware maintenance

Computer Maintenance

Q&A

Thank you