Module 5 EQA 1974

Related Regulations on Air Quality & Environmental Quality (Clean Air) Regulations 1978

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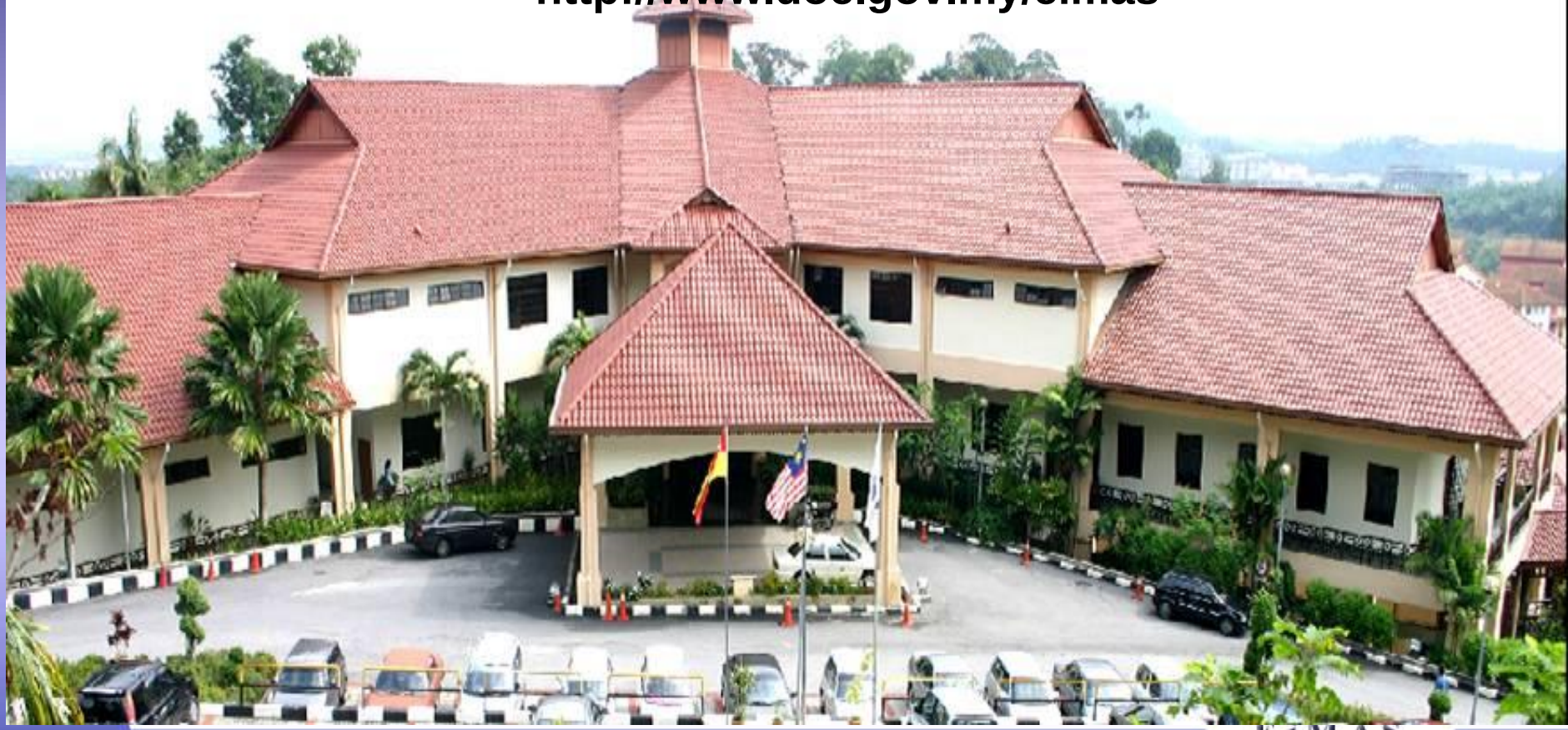

OUTLINE OF PRESENTATION

1. Sources That Subjected to Written Approval
2. Introduction Clean Air Regulation, 1978
3. Emission Standards & Ambient Air Quality Guideline
4. Written Approval Application Procedure
5. Written Approval Application Forms
6. Written Approval Condition
7. Other Related Regulations on Air Quality

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Objective

At the end of this module, you should be able

- briefly describe the overall provision in the Environmental Quality (Clean Air) Regulations 1978
- Recognize the sources that subjected to written approval
- Recognize various emission standards
- Explain the written approval application procedure and approval conditions.
- Recognize other related regulations, guidelines and Malaysian Standards on air quality

1. Sources subjected to Written Approval

- What needs written approval?

  - chimney, vents, opening, etc through which air pollutants will be discharged.

  - fuel burning equipment

  - incinerators

  - generators

- The application for the above would include air pollution control equipment

THE WRITTEN APPROVAL (…cont)

- The approval condition (KB) may include:

  - chimney height; control equipment specifications, operating conditions, maintenance and record keeping, etc.

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)**

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 residence.

Definition of chimney

- “Chimney” includes any structure, opening, vent, flue, conduit, outlet or any structure constructed or arranged from or through which air impurities may be emitted, and any reference to a chimney of or used in connection with premises, include a reference to a chimney which serves the whole or a part of the premises though structurally separate from such premises or building thereon.

Definition of fuel burning equipment

- Means any furnace, boiler, fire place, oven, retort, incinerator, internal combustion engine, vessel, or any other apparatus, device, mechanism, stack, chimney or structure used in connection with the burning of any combustible material.

Environmental Quality (Clean Air) Regulations, 1978

- Regulation 40. Control equipment to be in operation.

  Unless the Director-General in special circumstances allows, no facilities shall be operated without the control equipment in proper operation.

Environmental Quality (Clean Air) Regulations, 1978

- Regulation 41. Occupier to make adaptations and provide safe access.

- an occupier of any premises served by chimney shall make adaptations and provide safe and adequate access for the purpose of taking representative samples of the discharge from the chimney.

Environmental Quality (Clean Air) Regulations, 1978

- Regulation 42. Occupier to test and record.

  - install equipment or device so as to carry out test with respect to the emission of air impurities on such premises;

  - keep a permanent register of all such tests showing the date of each test and the result obtained.

  - the register shall be available for inspection by the Director-General or any authorised officer at all reasonable hours.

Environmental Quality (Clean Air) Regulations, 1978

- Regulation 43. Sampling point.

(a) a point for measuring the concentration of air impurities shall be such point as may be determined by the Director-General or any authorised officer;

(b) such point may be situated at the fixed point of emission of the air impurities, or in any flue, duct, or chimney located in the premises at some place other than the final point of emission of air impurities; and

(c) Results of all tests conducted on boilers, and incinerators shall be expressed on the basis of flue gas containing 12% by volume of carbon dioxide.

Environmental Quality (Clean Air) Regulations, 1978

- Regulation 47. Installation and operation as required by Director-General.

  Director-General may, under section 31 of the Environmental Quality Act 1974, by notice in writing require the occupier of those premises to :-

(a) install and operate control equipment or additional control equipment;

(b) repair, alter or replace any equipment or control equipment on those premises;

(c) erect or increase the height of the chimney;

(d) emit, discharge or deposit the air impurities; and

(e) carry out his trade, industry or process or operate any equipment or industrial plant,

within such time and in such manner as he may specify in the notice.

Environmental Quality (Clean Air) Regulations, 1978

- **Regulation 49. Licence required to contravene acceptable condition.**

  (1) No person Shall, unless licensed under section 22 (1) of the Act, emit or discharge any waste into the atmosphere in contravention of the acceptable conditions specified in regulations 7, 14, 15, 16, 21, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34 and 35.

- (2) Application for a licence under section 22 (1) of the Act shall be made in accordance with the procedures specified in the Environmental Quality (Licensing) Regulations, 1977[*P.U. (A) 198/77].*

Environmental Quality (Clean Air) Regulations, 1978

- **Regulation 49. Licence required to contravene acceptable condition.**

(3) The Director-General shall refuse the granting of such licence to contravene acceptable conditions specified in these Regulations unless he is satisfied that the granting of such licence is not likely to cause hazard to public health, safety or welfare or to animals, birds, wild life fish or aquatic life or to plants, or to affect adversely any beneficial use of the environment and-

(i) there is no known practicable means of control in order to comply with acceptable conditions; or
(ii) the estimated cost incurred to comply will be prohibitive having regard to the size of the trade, process or premises; or
(iii) that the economic life of the existing plant or equipment is less than three years from the date these Regulations come into force; or
(iv) the design, fabrication, supply and commissioning of the necessary control equipment require a longer period than the specified compliance date in these Regulations; or
(v) an occasion or instance whereby the imposition of the acceptable conditions as prescribed would create a condition, which in the opinion of the Director-General, having regard to all the circumstances, is not reasonably practicable or is contrary to the intent and spirit of the Act.

3.0 Emission Standards & Ambient Air Quality Guideline

Permissible dark smoke limit

Dark Smoke emissions when observed or recorded using instrument or devices

Type of fuel	Dark smoke limit
liquid fuel	Ringelmann Chart No 1
solid fuel	Ringelmann Chart No 2

Period

More than 5 minutes in any period of 1 hour or

More than 15 minutes in any period of 24 hours.

(Reference: Regulation 14, 16)

Stack Gas Emission Standards

(a) Date of Compliance

- New Facility follow **Standard C**

- Existing Facility follow **Standard A** (if within 2 years from 01.10.1978) or follow **Standard B** (if within 3 years from 01.10.1978)

(Reference: Regulation 21)

(b) Solid particles concentration in heating of metals

- concentration of dust, soot, ash, grit and any solid particles not exceed **Standard C = 0.2 g/Nm^3** of effluent gases

(Reference: Regulation 24)

Stack Gas Emission Standards

(c) Solid Particles Concentration In Other Operations

(whereby dust or solid particles are emitted)

Total Mass in emission not exceed:-

Standard C 0.4 g/Nm^3

(Reference: Regulation 25)

(d) Metals and metallic compounds must comply to

Standard C –

Mercury (0.01 g/Nm3), Cadmium(0.015g/Nm3), Lead (0.025g/Nm3), Antimony (0.015g/Nm3), Arsenic (0.025g/Nm3), Zinc (0.1 (0.015g/Nm3), Copper (0.015g/Nm3)

(Reference: Regulation 26)

(e) Gaseous substances

Substance Emitted	*Sources of Emission*	*Standards*
(a) Acid Gases ..	Manufacture of sulphuric acid	1. Equivalent of: Standard A: 7.5 Standard B: 6.0 Standard C: 3.5 gramme of sulphur trioxide/Nm^3 of effluent gas, 2. Effluent gas free from persistent mist
(b) Sulphuric acid mist or sulphur trioxide or both	Any source other than combustion process and plant for manufacture of sulphuric acid as in (a) above	1. Equivalent of: Standard A: 0.3 Standard B: 0.25 Standard C: 0.2 gramme of sulphur trioxide/Nm^3 of effluent gas, 2. Effluent gas free from persistent mist
(c) Chlorine gas ..	Any source	Standard A: 0.3 Standard B: 0.25 Standard C: 0.2 gramme of hydrogen chloride/Nm^3
(d) Hydrogen chloride	Any source	Standard A: 0.6 Standard B: 0.5 Standard C: 0.4 gramme of hydrogen chloride/Nm^3
(e) Fluorine, hydrofluoric acid, or inorganic fluorine compound	Manufacture of aluminium from alumina	Equivalent of: Standard C: 0.02 gramme of hydrofluoric acid/Nm^3 of effluent gas
(f) Fluorine, hydrofluoric acid, or inorganic fluorine compound	Any source other than manufacture of aluminium from alumina as in (e) above	Equivalent of: Standard A: 0.15 Standard B: 0.125 Standard C: 0.100 gramme of hydrofluoric acid/Nm^3 of effluent gas
(g) Hydrogen sulphide	Any source	Standard A: 6.25 Standard B: 5.00 Standard C: 5.00 parts per million volume for volume
(h) Oxide of nitrogen	Manufacture of nitric acid	Equivalent of: Standard A: 4.60 Standard B: 4.60 Standard C: 1.7 and effluent gas substantially colourless gramme of sulphur trioxide/Nm^3
(i) Oxides of nitrogen	Any source other than combustion processes and manufacture of nitric acid as in (h) above	Equivalent of: Standard A: 3.0 Standard B: 2.5 Standard C: 2.0 gramme of sulphur trioxide/Nm^3

(Reference: Regulation 27)

Stack Gas Emission Standards

(f) Asphalt concrete plant – Standard C

Stationary Plant 0.3 g/Nm^3
Mobile Plant 0.4 g/Nm^3

(Reference: Regulation 28)

(g) Portland cement plant – Standard C

Kiln 0.2 g/Nm^3
Clinker cooler, 0.1 g/Nm^3
Finish grinding

(Reference: Regulation 29)

(h) Facilities discharging asbestos & free silica
Standard C= 0.12 g/Nm^3

(Reference: Regulation 30)

AMBIENT AIR QUALITY GUIDELINES

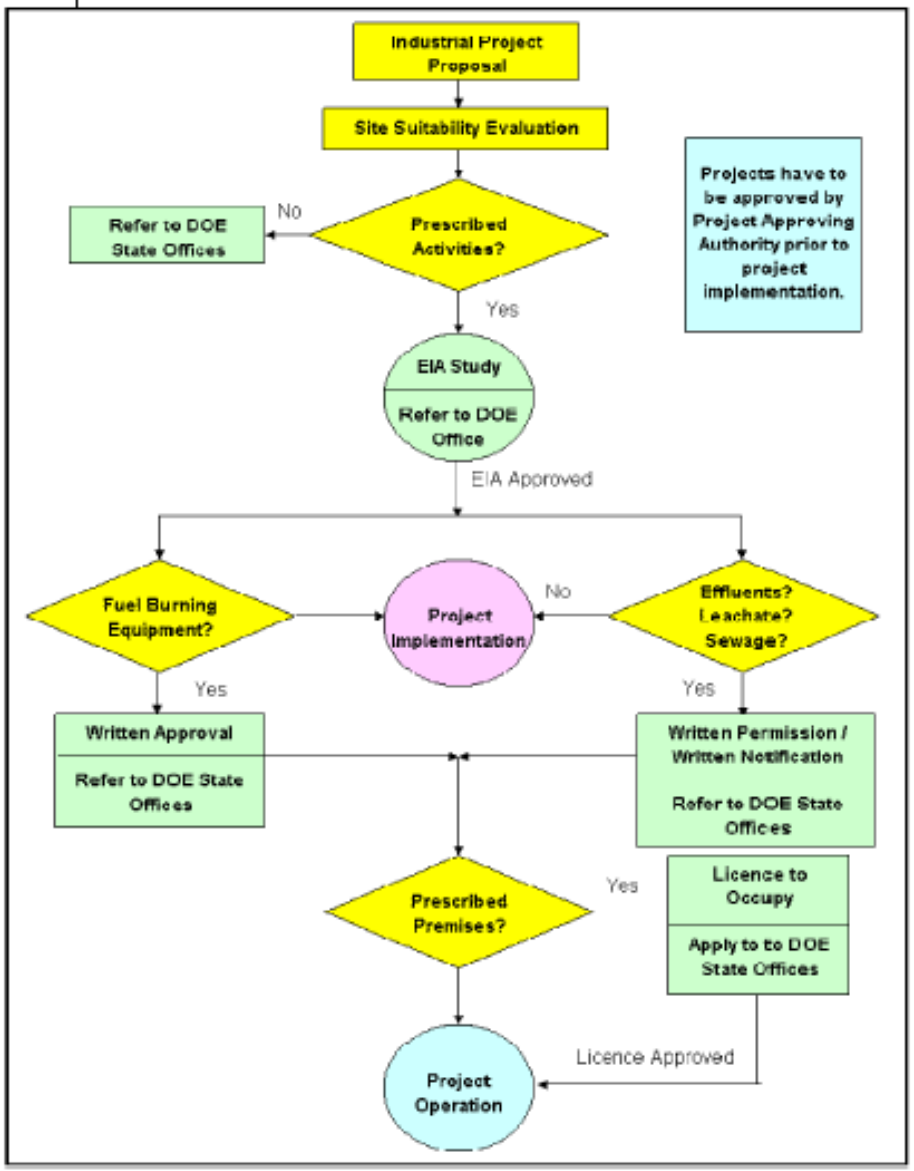
Pollutant	Averaging time	ppm	µg/m^3
Ozone	1 hour 8 hours	0.10 0.06	200 120
Carbon monoxide # (mg/m^3)	1 hour 8 hours	30 9	35 10
Nitrogen Dioxide	1 hour 8 hours	0.17 0.04	320
Sulfur Dioxide	10 minutes 1 hour 24 hours	0.19 0.13 0.04	500 350 105
TSP	24 l hour 1year		260 90
PM10	24 hour 1 year		150 50
Lead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

(at T= 25^{0}C , P = 1 Atm)

4.0 Written Approval Application Procedure

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

APPLICATION PROCEDURE FOR ENVIRONMENTALREQUIREMENTS 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:

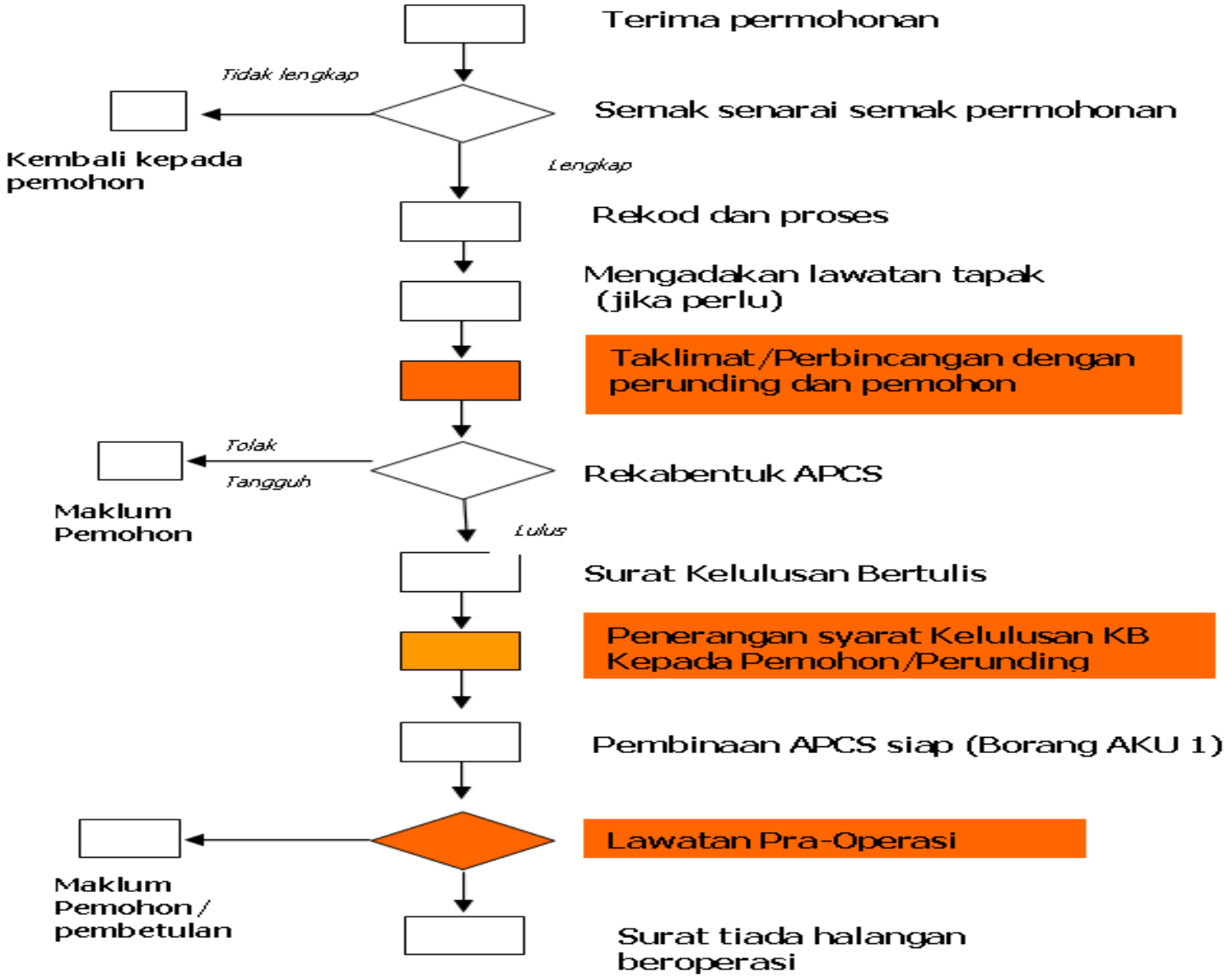
- **Written Permission** (Air).
- **Written Notification** (Sewage, Industrial Effluent, Leachate).
- **Written Approval** (Prescribed Premises: Crude Palm Oil Mills, Raw Natural Rubber Mills, Scheduled Wastes Facilities)

STEP 3

Licence to occupy:

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

APCS Flow Chart



Client Charter

- **Decision on a complete preliminary EIA report to be issued within 5 weeks.**
- **Decision on application for site suitability assessment on siting of new factory to be issued within 2 weeks.**
- **Decision on application for installation of fuel burning equipment and air pollution control equipment to be issued within 3 weeks**

5.0 Written Approval Application Forms

1. Application Form for Erection of Burning Equipment – AS16A
2. Application Form for Erection of Fuel Burning Equipment (Generator)– AS16B
3. Application Form for Erection of Incinerator– AS16C

5. Specific air pollution control systems application forms

1. Application Form for Scrubber – AS16 D-1
2. Application Form for Cyclone– AS16 D-2
3. Application Form for Bag Filter – AS16D-3
4. Application Form for Spray Booth – AS 16D4

Application Form for Generator

BORANG AS 16B
FORM AS 16B

PERMOHONAN KELULUSAN MEMASANG, MENEMPATKAN SEMULA/MENGUBAH ALAT PEMBAKARAN BAHANAPI (JANAKUASA) DI BAWAH PERATURAN 36 DAN 38, PERATURAN -PERATURAN KUALITI ALAM SEKELILING (UDARA BERSIH), 1978

APPLICATION FOR APPROVAL TO INSTALL/RESITE/ALTERA FUEL BURNING EQUIPMENT (GENERATOR) UNDER REGULATIONS 36 AND 38 OF THE ENVIRONMENTAL QUALITY (CLEAN AIR) REGULATION, 1978

B	**MAKLUMAT JANAKUASA** ***INFORMATION OF THE GENERATOR***

4. Butiran Janakuasa (Injin)
Details of Generator(Engine)

Nama Pembuat: _____
Manufacturer

Model: _____
Model

Keupayaan: _____ KVA@ _____ rpm
Capacity *KVA@* *rpm*

- Sertakan katalog injin dan carta/sijil 'noise rating'
Attach engine catalogue and noise rating chart/certificate

5. Jenis bahanapai: _____ _____
Type of fuel

6. Kadar penggunaan bahanapi:
Rate of fuel consumption

Beban penuh: _____ kg/jam
Full load *kg/hr*

Beban setengah: _____ kg/jan
Half load *kg/hr*

Application Form for Scrubber (AS 16 D-1)

Application Form for Scrubber (AS 16 D-1)

A. GENERAL INFORMATION FOR APPLICATION
B. GAS EMISSION DATA
C. DESIGN OF VENTILATION SYSTEM
D. FAN DATA
E. MOTOR DATA
F. CHIMNEY DESIGN
G. SCRUBBER DESIGN
H. PUMP DATA
I. PERFORMANCE MONITORING
J. DECLARATION

Application Form for Scrubber

BORANG AS 16 D-1
FORM AS 16 D-1

PERMOHONAN KELULUSAN MEMASANG, MENEMPATKAN SEMULA/MENGUBAH SISTEM KAWALAN PENCEMARAN UDARA BAGI PENCEMAR GAS (PENGGAHAR DAN CEROBONG) DI BAWAH PERATURAN 38, PERATURAN-PERATURAN KUALITI ALAM SEKELILING (UDARA BERSIH), 1978

APPLICATION FOR APPROVAL TO INSTALL/RESITE/ALTER AIR POLLUTION CONTROL SYSTEM FOR GASEOUS POLLUTANTS (SCRUBBER AND CHIMNEY) UNDER REGULATION 38 OF THE ENVIRONMENTAL QUALITY (CLEAN AIR) REGULATIONS, 1978

A. GENERAL INFORMATION FOR APPLICATION

1. Nama dan alamat pemunya/pemohon : *Name and address of applicant:* _____ _____ _____	2. Nama dan alamat pembuat/jururunding * *Name and address of manufacturer/consultant** _____ _____ _____
3. Pegawai yang boleh dihubungi*(Contact person)* _____	4. Pembuat/Perunding yang boleh dihubungi*(Contact person)* _____
5. No. Telefon*(tel. no.)*: _____ No. Faks*(Fax no.)*: _____	6. No. Telefon Pembuat/Perunding *(tel. no.)*: _____ No. Faks Pembuat/Perunding *(Fax no.)*: _____
7. Alamat pemasangan (jika lain dari di atas) *Installation address (if other than above)* _____ _____ _____	8. Jenis pengeluaran kilang : *Type of manufacturing facility.* _____ _____ _____
9. Nama kemudahan awam seperti sekolah, klinik, hospital dan lain-lain dalam lingkungan 300 meter dari lokasi pemasangan penggahar. *Names of public facilities such as school, clinic, hospital etc. within 300 metre radius from the location of proposed scrubber.* _____	

B. GAS EMISSION DATA

10. Jenis Gas *Type of gas*	11. Kepekatan sebelum sistem kawalan pencemaran udara *(Concentration before air pollution control system)* gm/Nm^3	12. Standard pelepasan* *(Emission Standard)** gm/Nm^3

* Rujuk kepada standard pelepasan di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 1978 atau jika tiada sila rujuk standard yang diamalkan di negara lain seperti USA atau Eropah

Refer to emission standard under the Environmental Quality (Clean Air) Regulations, 1978 or if not available please refer to standard being enforced in other countries such as USA or Europe

I. PERFORMANCE MONITORING

73. Terangkan lokasi jangka tekanan, sensor suhu, meter pH dan meter kadar alir yang dipasang untuk tujuan operasi dan pengawasan prestasi. Sertakan lukisan paip dan instrumentasi.
Describe location of pressure gauges, temperature sensors, pH meter and flowrate meters installed for the purpose of operation and performance monitoring. Attach piping and instrumentation drawing.

_____
_____

74. Kemukakan dengan menggunakan lampiran tambahan cadangan terperinci program pengawasan prestasi dan penyelenggaraan scrubber. Sila rujuk dokumen bertajuk 'Performance Monitoring of Air Pollution Control Systems' yang dikeluarkan oleh JAS untuk panduan
Submit using attachment detailed proposal on performance monitoring programme for the operation and maintenance of the scrubber. *Please refer to the document entitled 'Technical Guidance Documents No. DOE-2-2004 Performance Monitoring of Air Pollution Control Systems' issued by DOE for guidance.*

Nyatakan kaedah pelupusan atau rawatan cecair penggahar
State or describe the method of disposal or treatment of scrubbing liquid

_____
_____

75. Anggaran kepekatan gas pencemar yang dilepaskan melalui cerobong. Sertakan pengiraan berkaitan.
Estimated concentration of gaseous pollutant concentration discharge at the outlet of the chimney. Attach the calculation.
_____ gm/NM^3

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; _____
Date

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

NomborTelefon/*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: _____
_____

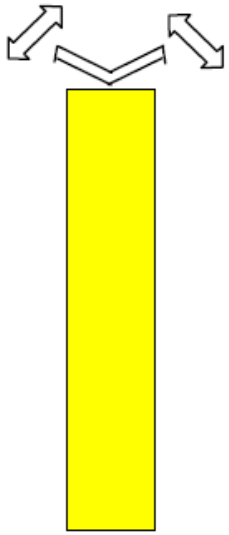
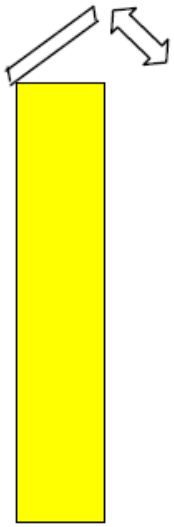
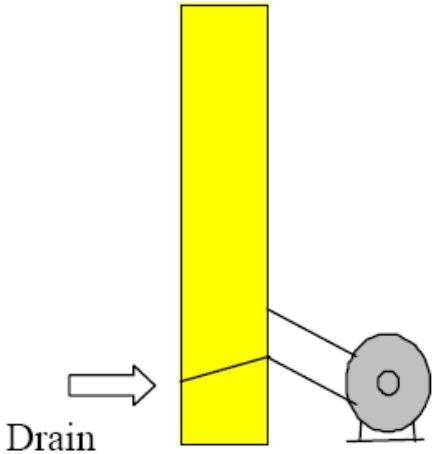
Nombor Telefon .: _____
Telephone No

Nombor Faks: _____
Fax No.

* Potong yang mana tidak berkenaan
Delete whichever is not applicable

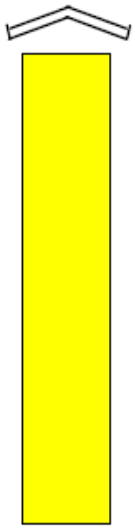
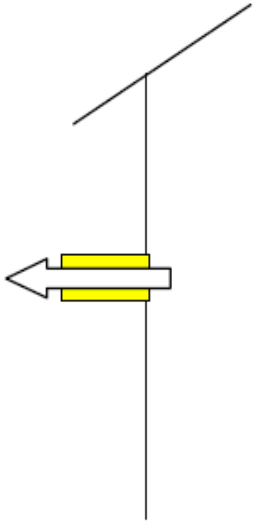
Stack design – rain cap

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.

6. Written Approval Conditions

A. SOURCES OF SOLID PARTICULATE

(List all machineries and the other infrastructure emitting dust , list all major components of air pollution control equipment)

B. CONSTRUCTION STAGE

(layout plan and equipment specification, chimney details, performance monitoring equipment)

Written Approval Conditions

C. OPERATION STAGE

(operation manual, performance monitoring, record keeping (log book), competent operator, stack sampling)

D. ADMINISTRATIVE

(Good house keeping, updated operation manual)

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)

Competency course

EiMAS's 2013 Training Calendar For Industries

NO	COURSE CODE	COURSE TITLE	COURSE FEE (RM)	NO OF DAYS	YEAR 2013											
					JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEPT	OCT	NOV	DEC
1	*CePSWaM*	Course for Certified Environmental Professional in Scheduled Waste Management (Inclusive 1 day examination)	**3,300**	5	07 - 11	18 – 22	18 – 22	08 – 12 22 – 26	06 – 10 27 – 31	24 – 28			02 – 06 23 – 27	07 – 11 21 – 25	11 – 15 25 – 29	02 – 06 16 – 20
		Examination for *CePSWaM* *(For re-sit – Practical or Written or Both* ***RM400*** *will be charged)*		1	11	22	22	12 26	10 31	28			06 27	11 25	15 29	06 20
2	*CePBFO*	Course for Certified Environmental Professional in Bag Filter Operation (Inclusive 1 day examination)	**4,000**	5		25 Feb – 01 Mar		08 – 12		03 – 07	01 – 05		30 Sept – 04 Oct		11 – 15	02 – 06
		Examination for *CePBFO* *(For re-sit – Practical or Written or Both* ***RM400*** *will be charged)*		1			01	12		07	05			04	15	06
3	*CePSO*	Course for Certified Environmental Professional in Scrubber Operation (Inclusive 1 day examination)	**4,000**	5	28 Jan – 01 Feb		11 – 15		06 – 10	17 – 21		26 – 30		28 Oct – 01 Nov 18 – 22 Nov		
		Examination for *CePSO* *(For re-sit – Practical or Written or Both* ***RM400*** *will be charged)*		1		01	15		10	21		30			01 22	
4	*CePIETSO – BP – (Biological Processes)*	Course for Certified Environmental Professional in the Operation of Industrial Effluent Treatment Systems (Biological Processes) (Inclusive 1 day examination)	**5,000**	6		03 – 08 Feb 24 Feb – 01 Mar 24 – 29 Mar		14 – 19	12 – 17 26 – 31	09 – 14 23 – 28		25 – 30	08 – 13 Sept 29 Sept – 04 Oct 20 – 25 Oct		17 – 22	02 – 07
		Examination for *CePIETSO* – Biological Processes *(For re-sit – Practical or Written or Both* ***RM400*** *will be charged)*		1		08	01 29	19	17 31	14 28		30	13	04 25	22	07

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:
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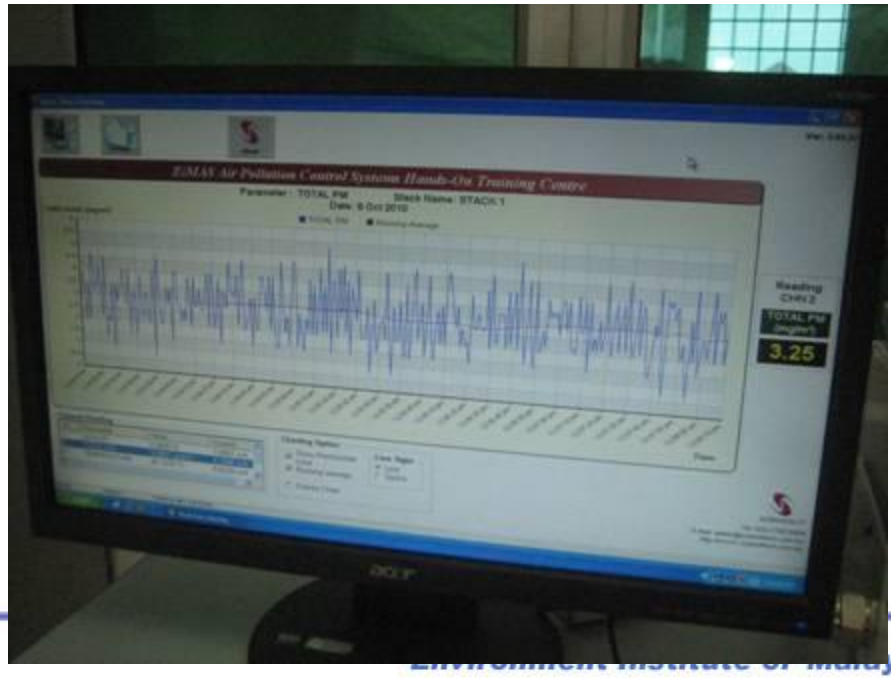
43650 Bandar Baru Bangi


PCME
MULTICONTROLLER


EMAS Air Pollution Control System Hands-On Training Centre
3.25

7. Other Related Regulations

REGULATIONS

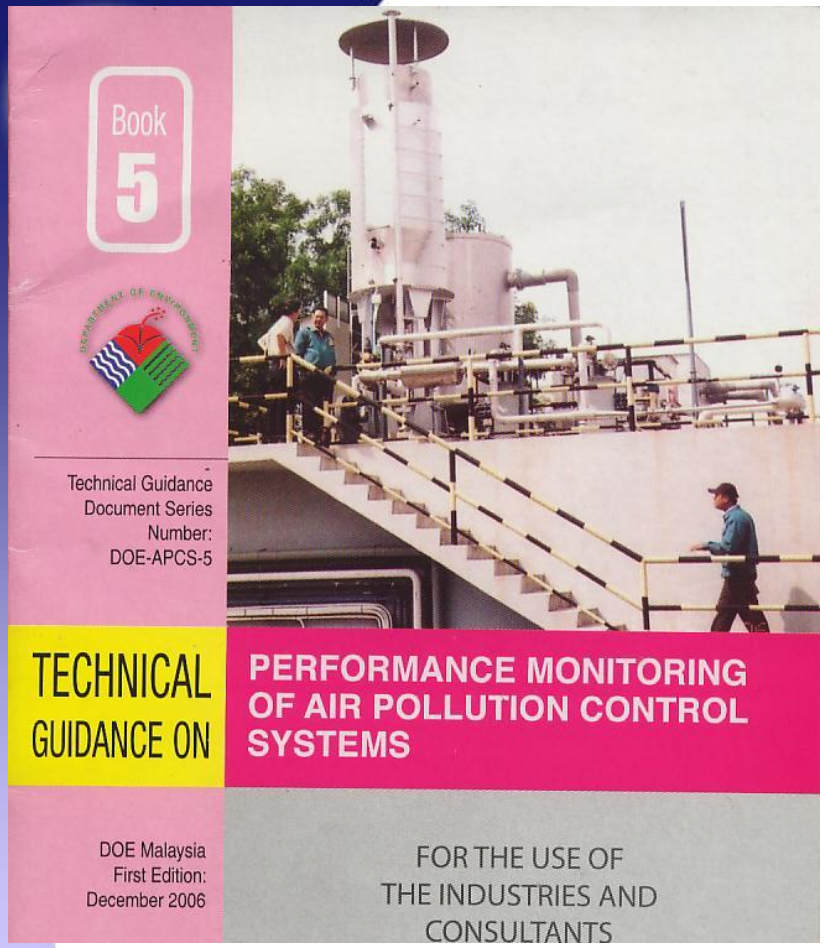
- Environmental Quality (Control of Petrol And Diesel Properties) Regulations 2007 - P.U.(A) 145/2007
- Environmental Quality (Dioxin And Furan) Regulations 2004 -P.U.(A) 104/2004
- Environmental Quality (Control of Emission From Motorcycles) Regulations 2003 - P.U. (A) 464/2003
- Environmental Quality (Halon Management) Regulations1999 - 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)

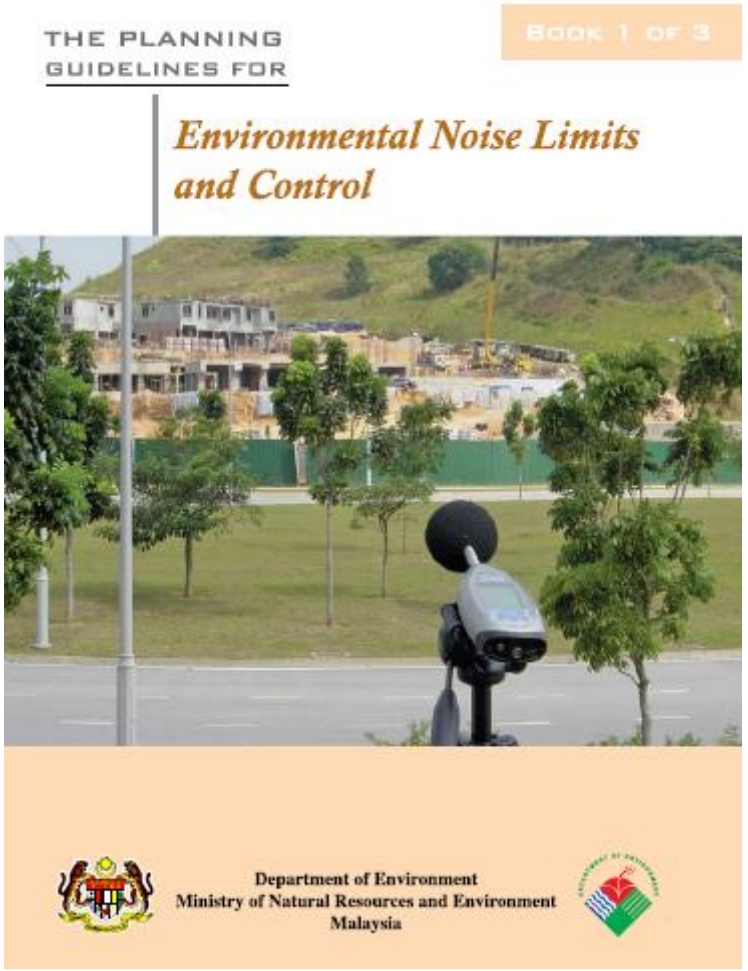
ORDER

- 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

GUIDELINES FOR

Book 2 of 3

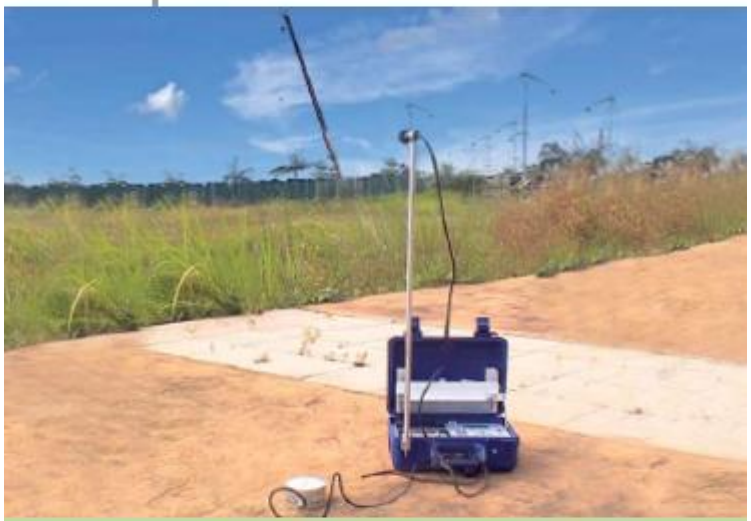
Noise Labeling and Emission Limits of Outdoor Sources

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

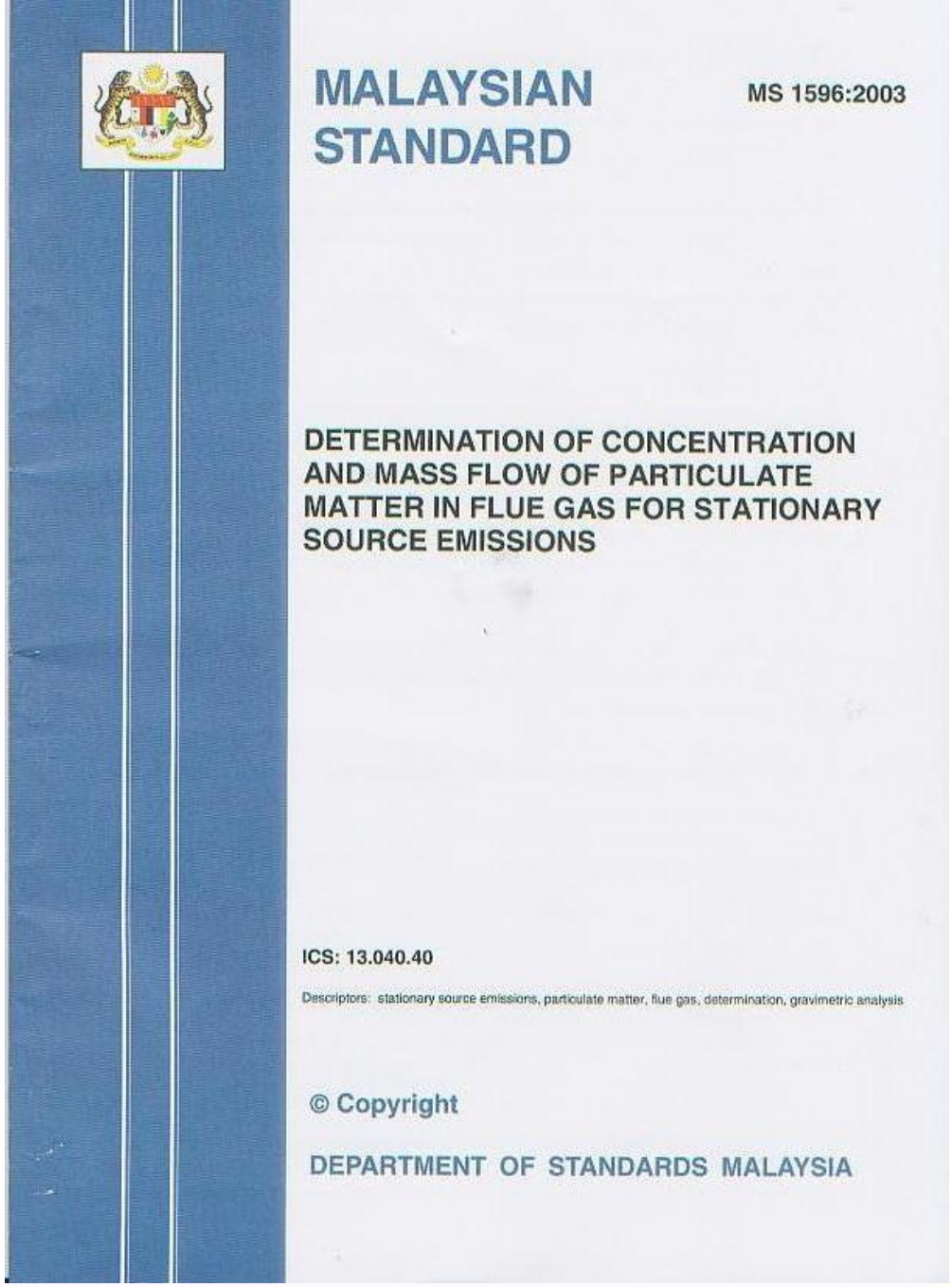


Department of Environment
Ministry of Natural Resources and Environment
Malaysia

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

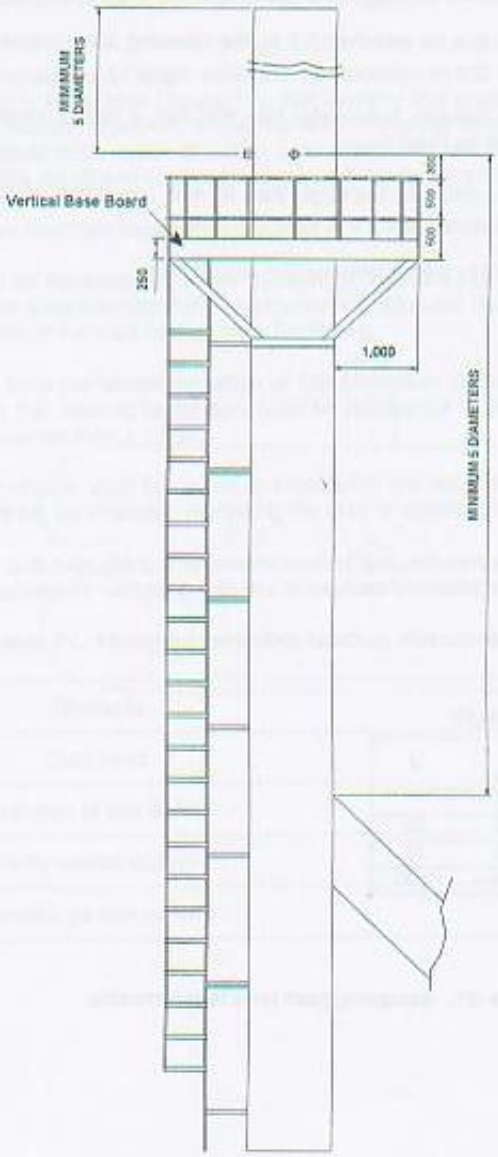


Figure H1. Sampling platform design

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

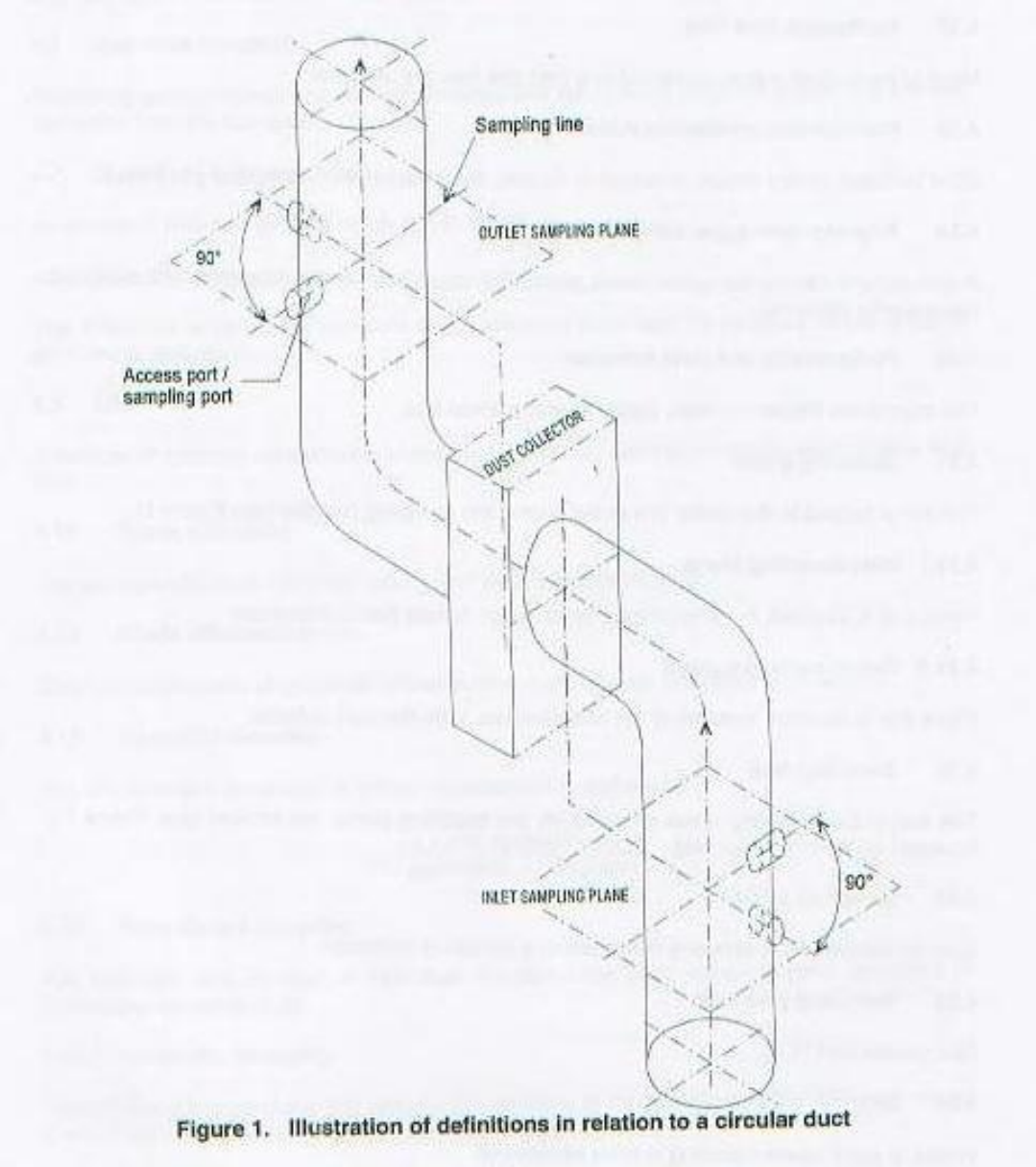


Figure 1. Illustration of definitions in relation to a circular duct

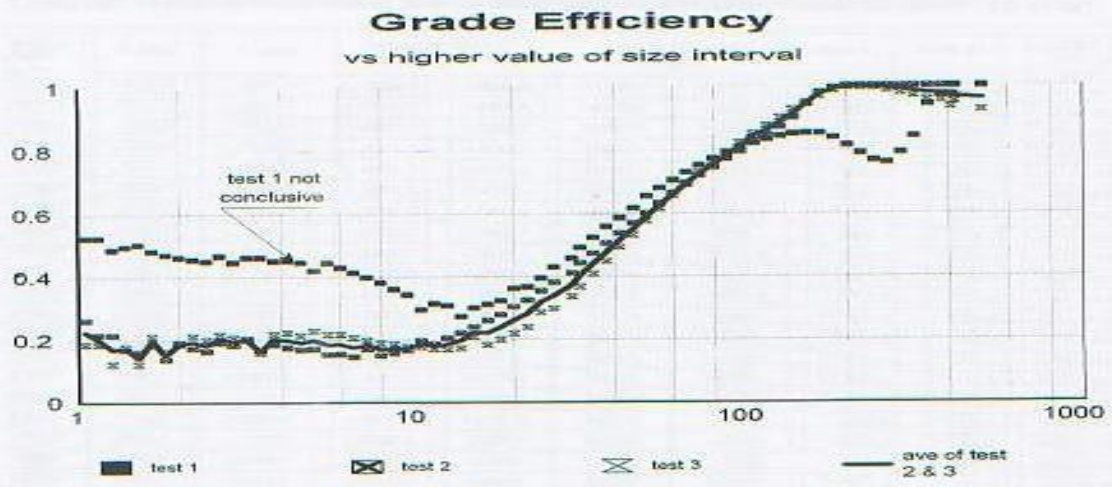


Figure A1. Graph of efficiency per particle size interval using the higher value of the particle size interval

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 indicated 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).

Q&A

Thank you