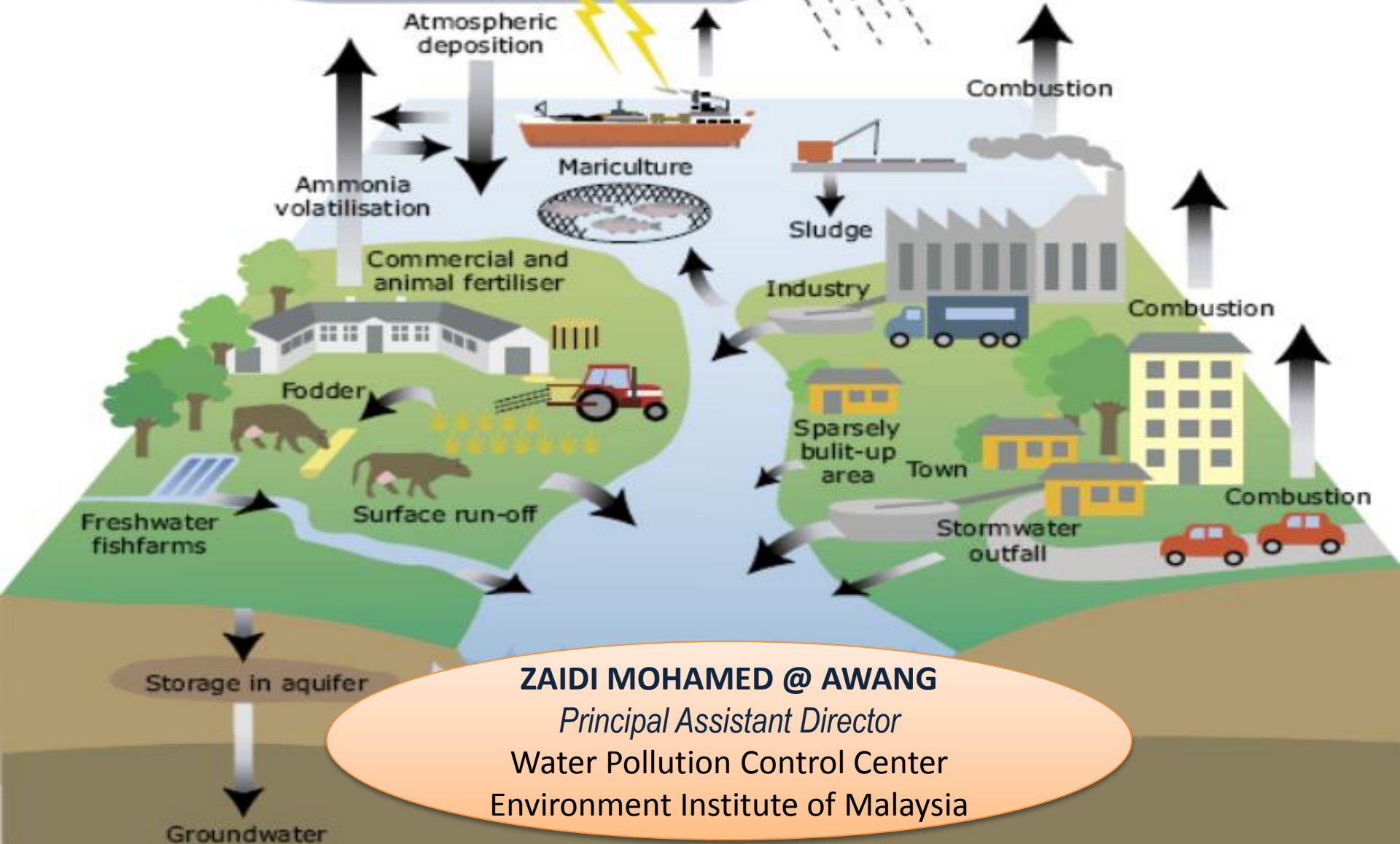


INDUCTION COURSE FOR ENVIRONMENTAL AUDITOR



ZAIDI MOHAMED @ AWANG
Principal Assistant Director
Water Pollution Control Center
Environment Institute of Malaysia

- i. EQ (Industrial Effluent) Regulations, 2009**
- ii. EQ (Sewage) Regulations, 2009**
- iii. EQ (Control of Pollution from Solid Waste Transfer Station & Landfill) Regulations, 2009**



Presentation Outlines

Introduction

Legal Framework

Industrial Effluent Regulations

Sewage Regulations

SWTS & Landfill Regulations

Conclusion

Presentation Outlines

Introduction

Legal Framework

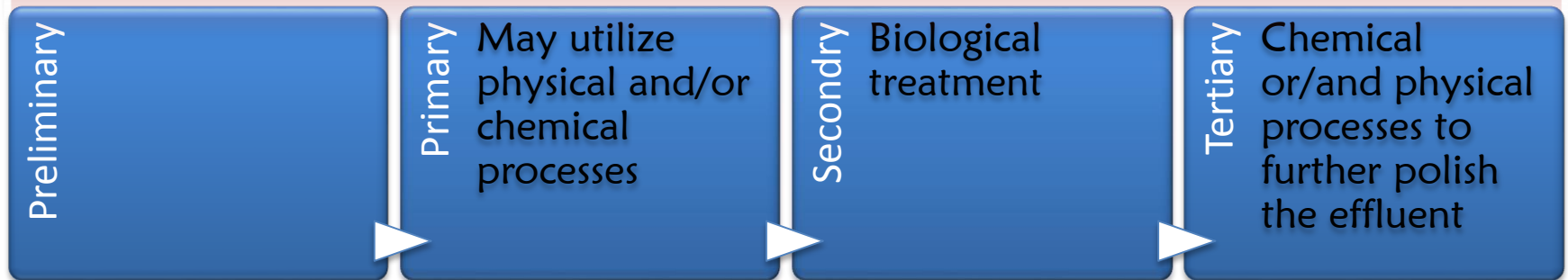
Industrial Effluent Regulation

Sewage Regulation

SWTS & Landfill Regulations

Conclusion

Classification of Treatment



Treatment process	Treatment process	Treatment process	Treatment process
<ul style="list-style-type: none">• Screening• Grit removal	<ul style="list-style-type: none">• Equalization, neutralization, flotation, sedimentation, coagulation/flocculation, precipitation, filtration, adsorption, stripping	<ul style="list-style-type: none">• Activated sludge, trickling filter, rotating biological contactor, oxidation pond, aerated lagoon	<ul style="list-style-type: none">• Adsorption, ion exchange, nitrogen removal, phosphorus removal, membrane processes, chemical oxidation

Presentation Outlines

Introduction

Legal Framework

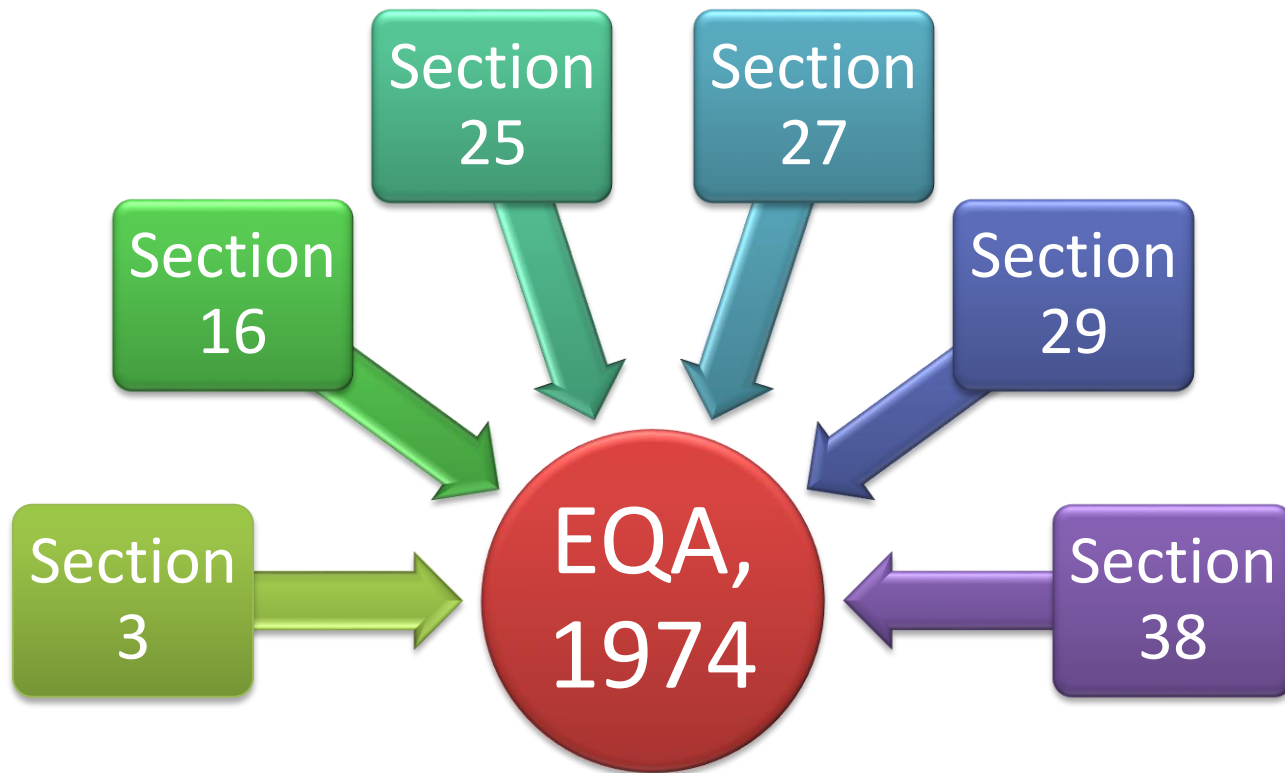
Industrial Effluent Regulations

Sewage Regulations

SWTS & Landfill Regulations

Conclusion

Legal Provision Under EQA 1974 for Water Pollution Control



Regulation for Controlling Water Pollution

Control of sewage,
landfill & industrial
wastewater pollution

Control of
agro-based
water pollution

EQ (Sewage)
Reg. 2009

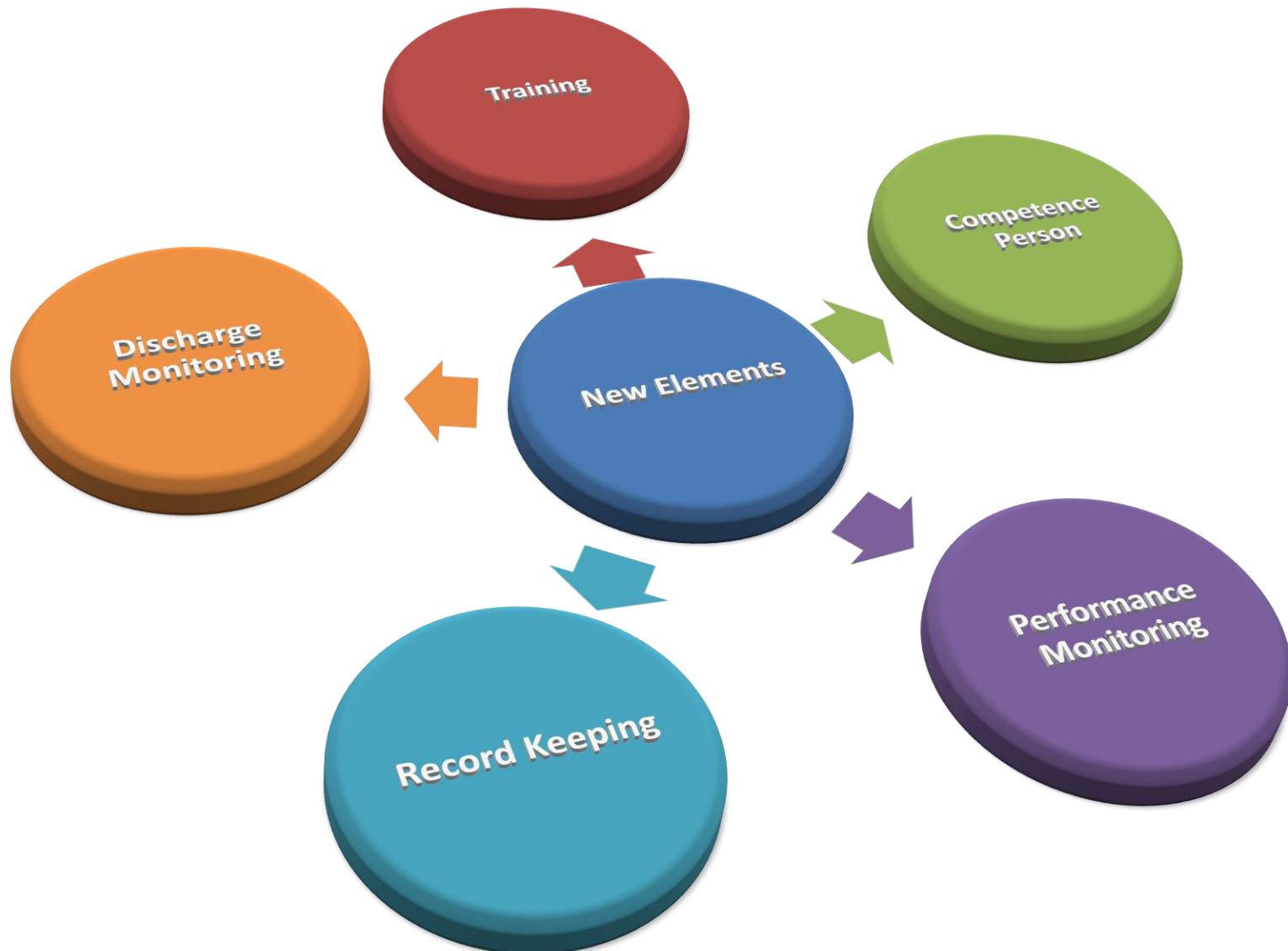
EQ (Industrial)
Reg. 2009

EQ
(SWTS&Landfill)
Reg. 2009

EQ (Prescribed
Premises)(Crude
Palm Oil) Reg.
1977

EQ (Prescribed
Premises)(Raw
Natural Rubber)
Reg. 1978

New Element of EQ (IE) & EQ (Sewage), 2009



Competence Person

“a person who has been **certified** by the Director General of the Department of Environment to be competent to be **in charge of or competent to supervise the operation of an IETS**”

Performance Monitoring

“Proactive & preventive monitoring of certain parameters to provide a diagnostic indication to ensure that unit operations and unit processes are operating optimally”

Compliance monitoring VS Performance monitoring

Compliance Monitoring	Performance Monitoring
Downstream activity	Upstream activity
Product focused	Ingredients focused
Result focused	Processes focused
Too late information	'Early warning' information
Processes not in control	In control of processes

Record Keeping

OER

PM record

Corrective Action

PMC record

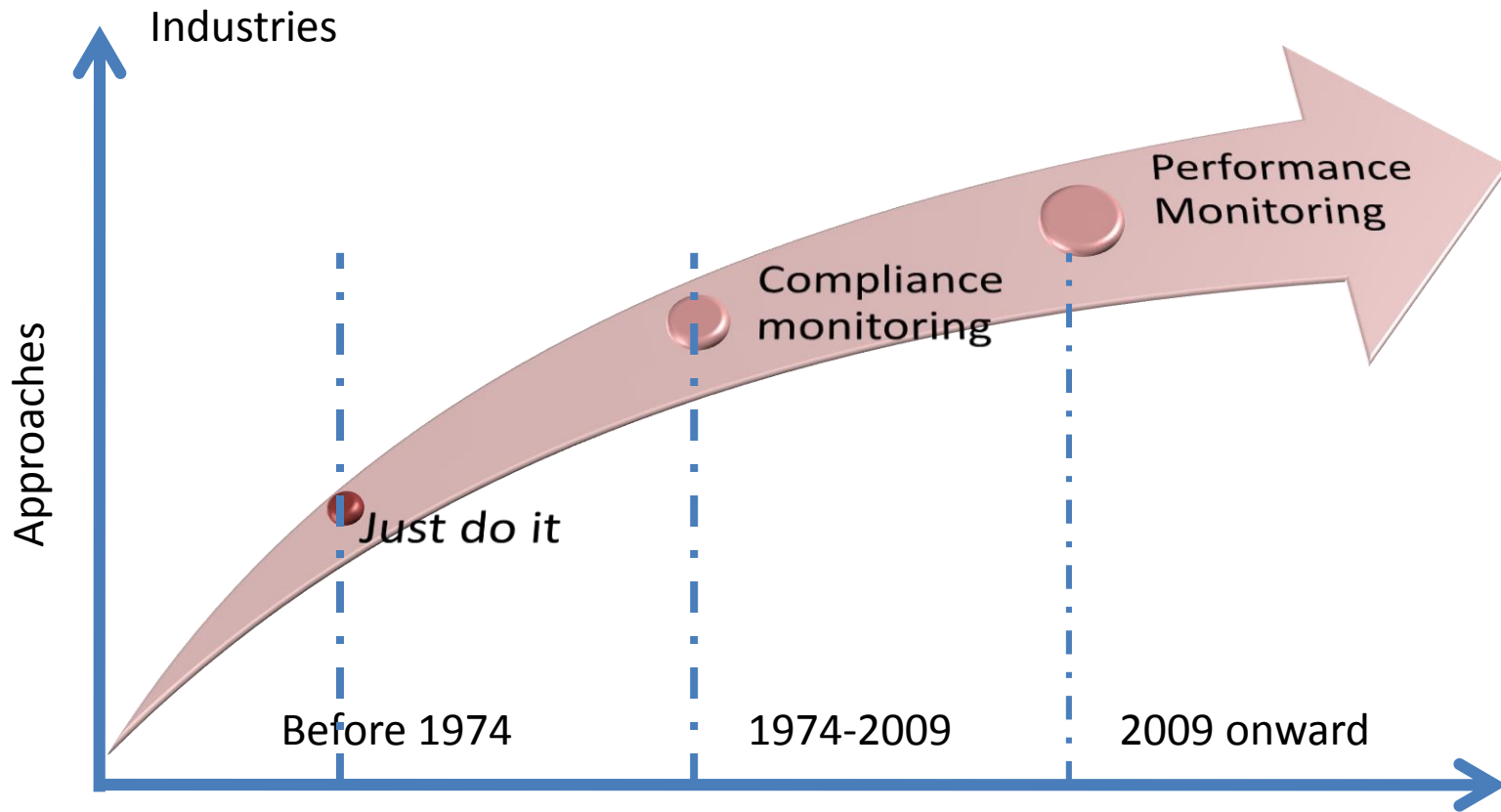
Discharge Monitoring

OER-online submission

Continuous Training



Paradigm Shift



Presentation Outlines

Introduction

Legal Framework

Industrial Effluent Regulations

Sewage Regulations

SWTS & Landfill Regulations

Conclusion

Environment Quality (Industrial Effluent) Regulations, 2009



Interpretation

- Best management practice
- Industrial Effluent
- Mix Effluent
- Sludge
- Sewage
- License
- Parameter
- Batch discharge
- Effluent Treatment System

Application

Reg 3:

- Effluent > **60m³/day**;
- BOD Loading or Suspended Solid > **6kg/day**
- Containing **O&G** or, **mercury, cadmium, chromium 6+, chromium 3+, arsenic, cyanide, lead, copper, manganese, nickel or tin.**

First Schedule

FIRST SCHEDULE

(Regulation 3)

LIST OF PREMISES TO WHICH THESE REGULATIONS Do NOT APPLY

1. Processing of oil-palm fruit or oil-palm fresh fruit bunches into crude palm oil, whether as an intermediate or final product
2. Processing of natural rubber in technically specified form, latex form including prevulcanised or the form of modified and special purpose rubber, conventional sheet, skim, crepe or scrap rubber
3. Mining activities
4. Processing, manufacturing, washing or servicing of any other products or goods that produce industrial effluent or mixed effluent of less than 60 cubic meters per day
5. Processing, manufacturing, washing or servicing of any other products or goods that produce industrial effluent or mixed effluent of which does not contain oil and grease or those contaminants listed as parameters (v) to (xv) in the first column of the Fifth Schedule
6. Processing, manufacturing, washing or servicing of any other products or goods where the total load of biochemical oxygen demand (BOD_5 at $20^{\circ}C$) or suspended solids or both, shall not exceed 6 kilogrammes per day (concentration of 100 milligrammes per litre)

Written Notification

Regulation 4:

- New source of discharge
 - work
 - New installation
- Change of Quantity & Quality
 - Increase Capacity
 - IETS Upgrading
- Format-2nd Schedule

IETS Design

Regulation 5:

- Must follow- *Guidance Document on the Design and Operation of IETS*
- Hire professional consultant
- Design verification
- *As per built drawing* must submitted 30 day before operation

IETS Specification

Regulation 6:

- Comply to design spec.
- DOE have the right to direct owner to ensure they follow the design accordingly

OER

Regulation 7:

- To monitor the discharge parameters
- To install recording device (e.g. flow meter)
- Reporting format should follow Schedule 10
- MDMR should submitted to DOE every month
- Record should be kept at lease 3 years for inspection



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General Line: 03 - 8871 2000 / 8871 2200 Fax Number : 03 - 8889 1973/75



Proper IETS Operation

Regulation 8:

- Operate IETS according to *Sound Engineering Practices*
- Ensure IETS operate within normal range

Performance Monitoring

Regulation 9:

- Performed PM as per *Guidance Document on PM of IETS*
- Equip with PM device

Competence Person

Regulation 10:

- Owner of IETS should have competence person
- Competence person should available for consultation at any time

Discharge Standard

Regulation 11:

Discharge Standard

FIFTH SCHEDULE

[Paragraph 11(1)(a)]

ACCEPTABLE CONDITIONS FOR DISCHARGE OF INDUSTRIAL EFFLUENT OR MIXED EFFLUENT OF STANDARDS A AND B

Parameter		Unit	Standard	
			A	B
(1)	(2)	(3)	(4)	
(i)	Temperature	°C	40	40
(ii)	pH Value	—	6.0-9.0	5.5-9.0
(iii)	BOD ₅ at 20°C	mg/L	20	50
(iv)	Suspended Solids	mg/L	50	100
(v)	Mercury	mg/L	0.005	0.05
(vi)	Cadmium	mg/L	0.01	0.02
(vii)	Chromium, Hexavalent	mg/L	0.05	0.05
(viii)	Chromium, Trivalent	mg/L	0.20	1.0
(ix)	Arsenic	mg/L	0.05	0.10
(x)	Cyanide	mg/L	0.05	0.10
(xi)	Lead	mg/L	0.10	0.5
(xii)	Copper	mg/L	0.20	1.0
(xiii)	Manganese	mg/L	0.20	1.0
(xiv)	Nickel	mg/L	0.20	1.0
(xv)	Tin	mg/L	0.20	1.0
(xvi)	Zinc	mg/L	2.0	2.0
(xvii)	Boron	mg/L	1.0	4.0
(xviii)	Iron (Fe)	mg/L	1.0	5.0
(xix)	Silver	mg/L	0.1	1.0
(xx)	Aluminium	mg/L	10	15
(xxi)	Selenium	mg/L	0.02	0.5
(xxii)	Barium	mg/L	1.0	2.0
(xxiii)	Fluoride	mg/L	2.0	5.0
(xxiv)	Formaldehyde	mg/L	1.0	2.0
(xxv)	Phenol	mg/L	0.001	1.0
(xxvi)	Free Chlorine	mg/L	1.0	2.0
(xxvii)	Sulphide	mg/L	0.50	0.50
(xxviii)	Oil and Grease	mg/L	1.0	10
(xxix)	Ammoniacal Nitrogen	mg/L	10	20
(xxx)	Colour	ADMI*	100	200

*ADMI—American Dye Manufacturers Institute

COD Standard Discharge for Specific Industries

Regulation 12:

COD Discharge Standard

Trade/Industry	Unit	Standard	
		A	B
Pulp and paper industry			
(i) pulp mill	mg/L	80	350
(ii) paper mill (recycled)	mg/L	80	250
(iii) pulp and paper mill	mg/L	80	300
Textile industry	mg/L	80	250
Fermentation and distillery industry	mg/L	400	400
Other industries	mg/L	80	200

Discharge Standard of COD for Mixed Effluent

Regulation 13:

COD Discharge Standard for Mixed Effluent

EIGHTH SCHEDULE

(Regulation 13)

ACCEPTABLE CONDITIONS FOR DISCHARGE OF MIXED EFFLUENT CONTAINING CHEMICAL OXYGEN DEMAND (COD)

(1)	(2)	(3)
Unit	Standard	Standard
	A	B
mg/L	80	200

Best Management Practice for other parameters

Regulation 14:

- Shall adopt best available practices for any parameters as specified in **Ninth Schedule**

NINTH SCHEDULE

(Regulation 14)

LIST OF PARAMETERS FOR DISCHARGE OF INDUSTRIAL EFFLUENT OR MIXED EFFLUENT WHICH BEST MANAGEMENT PRACTICE TO BE ADOPTED

- (i) Nitrate Nitrogen
- (ii) Sulphate
- (iii) Chloride
- (iv) Cobalt
- (v) Detergent, Anionic
- (vi) Molybdenum
- (vii) Phosphate (as P)
- (viii) Polychlorinated Biphenyls
- (ix) Beryllium
- (x) Vanadium
- (xi) Pesticides, fungicides, herbicides, rodenticides, fumigants or any other biocides or any other chlorinated hydrocarbons
- (xii) Any substance that either by itself or in combination or by reaction with other waste may give rise to any gas, fume or odour or substance which causes or is likely to cause pollution
- (xiii) Total Organic Carbon
- (xiv) Whole Effluent Toxicity (WET)
- (xv) Dioxin
- (xvi) Endocrine disruptors

Contravention License

Regulation 15:

- May apply if any incompliance with regulation 11, 12 & 13
- Required IECS
- Process fee RM 500 & effluent fee

Method of Analysis

Regulation 16:

- Analysis method used- APHA 21st Ed.

Discharge Point

Regulation 17:

- Should follow specification as mention in Schedule 11
- Layout plan should submitted 30 day before operation
- Should notify the respective state DOE, 30 day before make any changes of discharge point

ELEVENTH SCHEDULE

[Subregulation 17(1)]

SPECIFICATIONS OF POINT OF DISCHARGE OF INDUSTRIAL EFFLUENT OR MIXED EFFLUENT

1. The discharge point is located within the boundary of the premises, immediately after the final unit operation or unit process of the industrial effluent treatment system.
2. The location of the discharge point is easily accessible and does not pose any safety hazards to personnel performing site inspection or effluent sampling.
3. The industrial effluent or mixed effluent is discharged through a pipe, conduit or channel to facilitate effluent sampling.
4. The discharge point is physically identified by installing a metal identification sign which reads "Final Discharge Point".
5. The discharge point and its surrounding are properly maintained to be free from any obstruction that may pose difficulty or hazards during site inspection or effluent sampling.

By pass Prohibition

Regulation 18:

- By pass totally not allowed
- Serious offence and will be charge in court

Effluent Dilution

Regulation 19:

- Any dilution is not allowed

Accidental Spill and Leakages

Regulation 20:

- Should notify to DOE within 6 hour
- Owner responsible to stop or prevent the spillage or leakages
- DOE have the right to impose the method of containment
- DOE have the right to claim clean up cost to the owner

Prohibition against discharge of effluent containing certain substances

Regulation 21:

- Any inflammable solvent
- Any tar or other liquid immiscible with water
- Sawdust or wood waste
- Sludges

Prohibition of Change Effluent Quality

Regulation 22:

- Industry with contravention license is not allow to do any changes with their process and premise

Restriction on Disposal of Sludge

Regulation 23:

- No sludge disposal onto or into any land, soil inland waters or Malaysian water without written permission from DOE

Reporting Any Changes in information for purpose of license application

Regulation 24:

- Any information changes shall inform within seven days of occurrence.

Display of License

Regulation 25:

- Display at appropriate place

Continuance of existing conditions

Regulation 26:

- New owner shall follow the existing conditions

Record Keeping

Regulation 27:

- Record on process, operation, IETS PM must maintained regularly
- Must available during inspection

Personnel Training

Regulation 28:

- Personnel who are involved in the operation of IETS must have the required **knowledge and skills**
- Relevant training records must be maintained for inspection

Assistance

Regulation 29:

- Appropriate assistance during inspection

Prohibition Order

Regulation 30:

- Prohibition order to stop operation (**Twelfth Schedule**) for certain period with condition
- Premise not allowed to operate during prohibition period

[Subregulation 30(1)]

LIST OF UNDESIRABLE OCCURRENCES

1. Pollution cases that seriously threaten the environment or public health and safety which warrant immediate halt.
2. Premises that experience industrial disaster such as fire, explosion and the like which may pose serious risk to the environment or the public in the vicinity.
3. Serious environmental pollution which gives rise to frequent complaints and upon investigation, the complaints are found to be justified and the premises are flouting the directives of the Director General.
4. Premises which frequently commit similar offences despite having been subject to various legal actions by the Director General such as notices, directives, compounds or court action.
5. Pollution cases which cause serious negative impacts to aquatic life and there is evidence indicating that the premises do not make sufficient effort to overcome the pollution problems.
6. Serious environmental pollution with wide coverage in the mass media and there is evidence indicating that the pollution occurred as a result of absence, non-operation or malfunctioning of industrial effluent treatment system in the premises.
7. Premises which discharge untreated or partially treated industrial effluent or mixed effluent or which discharge industrial effluent or mixed effluent through a by-pass and based on measurements or analysis of industrial effluent or mixed effluent quality using *in-situ* methods, there is evidence indicating that the industrial effluent or mixed effluent is grossly non-compliant.

License Fee

Regulation 31:

- Fee for contravention license
 - Processing fee RM 500
 - Effluent related fee (**Schedule 13**)
 - Transfer fee RM 100.00

THIRTEENTH SCHEDULE

[Subregulation 31(1)]

METHOD OF COMPUTING EFFLUENT-RELATED LICENCE FEE

Parameter	Fee per kg of contaminant discharged into inland waters as specified in paragraph 11(1)(a) STD A	Fee per kg of contaminant discharged onto any soil or into other inland waters STD B
(i) BOD ₅ at 20°C	RM 0.50	RM 0.05
(ii) Mercury	RM 2500.00	RM 250.00
(iii) Cadmium	RM 2500.00	RM 250.00
(iv) Chromium, Hexavalent	RM 2500.00	RM 250.00
(v) Chromium, Trivalent	RM 2500.00	RM 250.00
(vi) Arsenic	RM 2500.00	RM 250.00
(vii) Cyanide	RM 2500.00	RM 250.00
(viii) Lead	RM 2500.00	RM 250.00
(ix) Copper	RM 2500.00	RM 250.00
(x) Manganese	RM 2500.00	RM 250.00
(xi) Nickel	RM 2500.00	RM 250.00
(xii) Tin	RM 2500.00	RM 250.00
(xiii) Silver	RM 2500.00	RM 250.00
(xiv) Selenium	RM 2500.00	RM 250.00
(xv) Barium	RM 2500.00	RM 250.00
(xvi) Fluoride	RM 2500.00	RM 250.00
(xvii) Formaldehyde	RM 2500.00	RM 250.00
(xviii) Zinc	RM 2500.00	RM 250.00
(xix) Boron	RM 500.00	RM 50.00
(xx) Iron	RM 500.00	RM 50.00
(xxi) Phenol	RM 500.00	RM 50.00
(xxii) Sulfide	RM 500.00	RM 50.00
(xxiii) Oil and Grease	RM 500.00	RM 50.00
(n-hexane extract)	RM 500.00	RM 50.00
(xiv) Ammoniacal Nitrogen	RM 500.00	RM 50.00

Calculation Example

- Example:

- i. Effluent Characterization

$$Q = 100\text{m}^3/\text{day}$$

$$\text{BOD}_5 = 3000\text{mg/L}$$

$$\text{O\&G} = 20\text{mg/L}$$

- ii. Duration = 100 day to contravene Std. A

- iii. Loading

$$\text{BOD}_5 = (100\text{m}^3/\text{day} \times 3000 \text{ mg/L})/1000 = 300\text{kg/day}$$

$$\text{O \& G} = (100\text{m}^3/\text{day} \times 20 \text{ mg/L})/1000 = 2 \text{ kg/day}$$

- ii. Fee Calculation

From Schedule 13,

Rate of BOD_5 for Std A = RM0.50/kg

Rate of O&G for Std A = RM500/kg

Thus;

$$\text{BOD}_5 \text{ fee} = 300\text{Kg/day} \times 100 \text{ day} \times \text{RM}0.50/\text{Kg} = \text{RM } 15,000.00$$

$$\text{O\&G fee} = 2\text{Kg/day} \times 100 \text{ day} \times \text{RM } 500/\text{kg} = \text{RM } 100,000.00$$

$$\text{Total effluent fee} = \text{RM } 15,000.00 + \text{RM } 100,000.00 = \text{RM } 115,000.00$$

$$\text{So total Fee for contravention license} = \underline{\underline{\text{RM } 500 + \text{RM } 115,000.00}}$$

Penalty

Regulation 32:

- Maximum penalty RM 100,000.00
or
- 5 year imprisonment or
- Both

Environmental Rules (Compounding Offences) (Amendment) 2010

- All offences under EQ (IE), 2009 are compoundable
- Maximum RM 2000.00

Revocation

Regulation 33:

- EQ (Sewage & Industrial Effluents), 1979 is revoked

Presentation Outlines

Introduction

Legal Framework

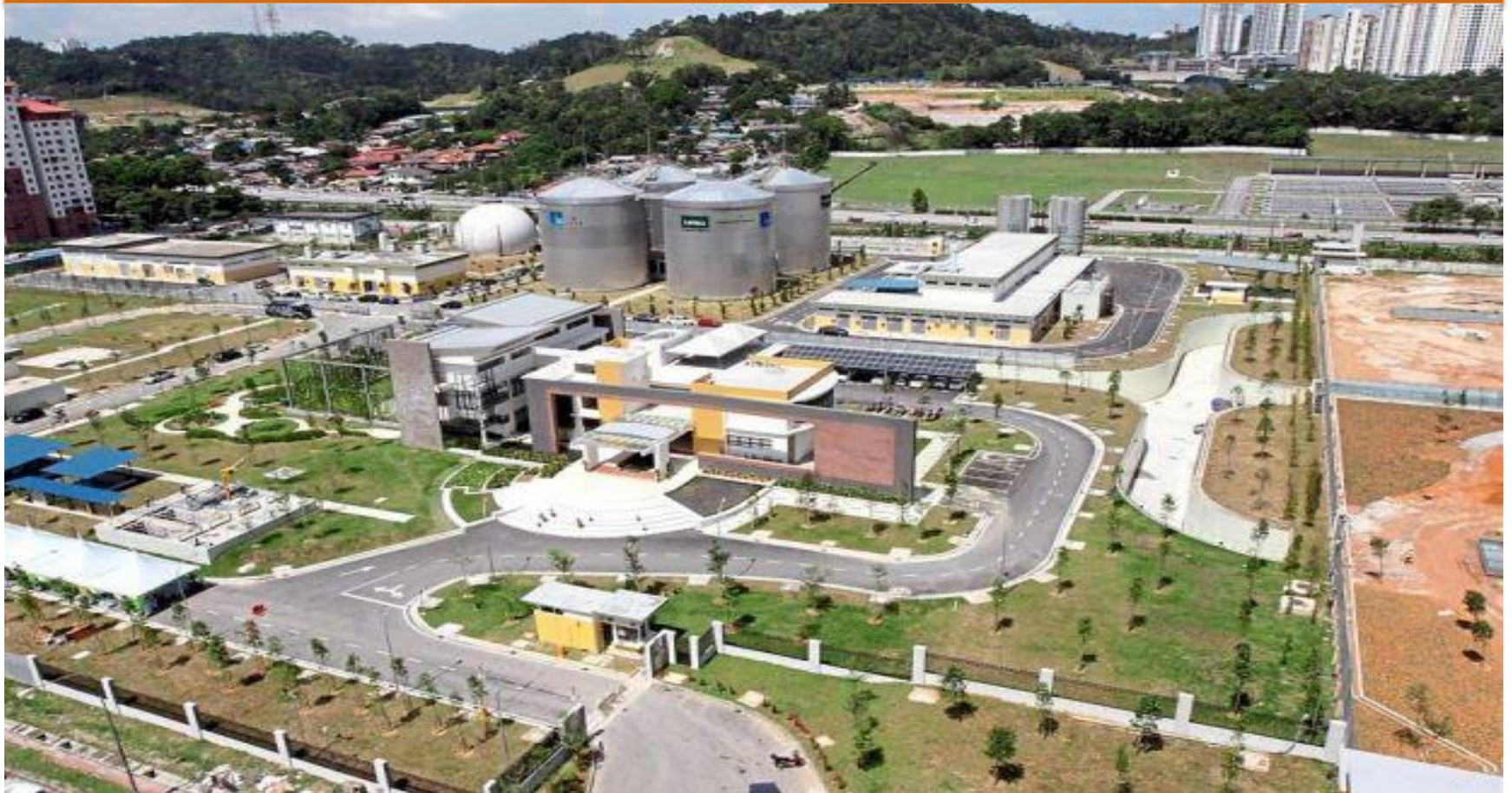
Industrial Effluent Regulations

Sewage Regulations

SWTS & Landfill Regulations

Conclusion

Environment Quality (Sewage) Regulations, 2009



Interpretation

- Population Equivalent (PE)
- Sewage treatment plant (STP)

(Population Equivalent) PE

Type of Establishment	Population Equivalent
Residential	5 per house
Commercial : Includes offices, shopping complex, entertainment / recreational centres, restaurants, cafeteria and theatres	3 per 100m2 gross area
School / Educational Institutions : - Day schools / Institutions - Fully residential - Partial residential	0.2 per student 1 per student 0.2 per non-residential student 1 per residential student
Hospitals	4 per bed
Hotel with dining and laundry facilities	4 per room
Factories, excluding process water	0.3 per staff
Market (Wet Type)	3 per stall
Market (Dry Type)	1 per stall
Petrol kiosks / Service stations	15 per toilet
Bus Terminal	4 per bus bay
Taxi Terminal	4 per taxi bay
Mosque / Church / Temple	0.2 per person
Stadium	0.2 per person
Swimming Pool or Sports Complex	0.5 per person
Public Toilet	15 per toilet
Airport	0.2 per passenger/day 0.3 per employee
Laundry	10 per machine
Prison	1 per person
Golf Course	20 per hole

Application

Reg. 3

Any sewage
discharge into/
onto land, into
inland water or
Malaysia water

PE \geq 150

Regulation 4:Notification

Notification of sewage discharge

Form- **First Schedule**

Regulation. 5: Proper Operation

- Ensure operate within normal operation range



Regulation 6: Competence Person



STP shall operate by
competence person



certified by DG of DOE



Shall be contacted at any time

Regulation 7 (1) Discharge Standard

New STP

- build 2009 onward

Existing STP

- Approved before Jan 1999

Existing STP

- Approved after Jan 1999

Exception for communal septic tank & imhoff tank

Discharge Standard for New STP

(2nd Schedule)

Parameter	Unit	Standard	
		A	B
Temperature	°C	40	40
pH	-	6.0-9.0	5.5-9.0
BOD ₅ at 20°C	mg/L	20	50
COD	mg/L	120	200
TSS	mg/L	50	100
Oil & Grease	mg/L	5	10
Ammonia Nitrogen (river)	mg/L	5	5
Ammonia Nitrogen (stagnant water)	mg/L	10	20
Nitrate Nitrogen (river)	mg/L	20	50
Nitrate Nitrogen (stagnant water)	mg/L	10	10
Phosphorus	mg/L	5	10

Discharge Standard for STP before Jan 1999 (2nd Schedule)

Parameter	Unit	CST		IT		AL		OP		MP	
		A	B	A	B	A	B	A	B	A	B
BOD₅ at 20°C	mg/L	200	200	175	175	100	100	120	120	60	60
COD	mg/L	-	-	-	-	300	300	360	360	180	240
TSS	mg/L	180	180	150	150	120	120	150	150	100	120
Oil & Grease	mg/L									20	20
Ammonia Nitrogen (river)	mg/L	-	-	100	100	80	80	70	70	60	60

Discharge Standard for STP after Jan 1999 (2nd Schedule)

Parameter	Unit	Standard	
		A	B
BOD ₅ pada 20°C	mg/L	20	50
COD	mg/L	120	200
TSS	mg/L	50	100
Oil & Grease	mg/L	5	10
Ammonia Nitrogen (river)	mg/L	50	50

Regulation : 7 (2)

Improvement Programme

*Existing
STP, Std A*

- Shall comply Std A (New)
- 31 Dec 2016

*Existing
STP, Std B*

- Shall comply Std B (New)
- 31 Dec 2019

Exception for communal septic tank & imhoff tank



Reg. 8: Contravention License

- Application under section 25 EQA;
- Shall follow as required EQ (Licensing), 1977
- Submit with
 - A report on sewage characterization study;
and
 - Application fee & Sewage related fee as
per Reg. 24



Method of Sampling & Analysis

- Method of analysis (**Forth Schedule**)
 - *APHA Method 21 Ed.* or
 - CFR, Chap. 40 Subchap. D, part 136
- *Grab sampling method*



Reg.10: **ONLINE ENVIRONMENTAL REPORTING (OER)**

- Format - **Fifth Schedule**
- Monthly report
- Install flow meter, sampling equipment & recording equipment





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General Line: 03 - 8871 2000 / 8871 2200 Fax Number : 03 - 8889 1973/75



Reg. 11:Discharge Point

- Specification as required in **Sixth Schedule**

Reg. 12:Prohibition of By-pass

- By pass is not allow

Per. 13: Spill or accidental discharge

- Should notify to DOE within 6 hour
- Owner responsible to stop or prevent the spill or leakages
- DOE have the right to specify the method of containment
- DOE have the right to claim clean up cost to the owner

Reg. 14 : Restriction for Sludge Disposal

- Sludge is not allow to dispose into inland water or Malaysian water

Reg. 15 : Restriction on Sludge Disposal Onto Land

- Shall apply for written permission to DOE

Reg. 16 Sludge Disposal Application

- Fee RM 500.00

Reg.: 17 Report Any Changes in License

- Shall report to DOE within 7 day of the changes

Reg.: 18 Display of License

- Display at appropriate place

Reg. 19: Continuance of License Condition

- 14 day from the material changes
- Transfer fee RM500.00
- New owner shall follow the existing condition

Per. 20 Record Keeping



- Operational record, maintenance and PM
- Shall available during inspection

Per. 21 Personnel Training



- All the training detail shall be recorded
- Shall available during inspection

Per. 22: Provision for Inspection

- Install inspection chamber
- Install flow meter, sampling device, any recording device to measure discharge quality

Per. 23: Assistance

- Provide appropriate assistance during inspection





Reg. 24 Fee for Licence

- (New/renew/transfer) fee RM 500.00
- Sewage related fee **Seventh Schedule**



Reg. 25 Waiver of Fee

Only minister could approve the fee waiver

Existing Sewage Related Fee

Parameter	Fee per kg of contaminant discharged into inland waters as specified in subparagraphs 5(1)(a), (c) or (e) STD A	Fee per kg of contaminant discharged onto any soil or into other inland waters STD B
(i) BOD ₅ at 20°C	RM0.50	RM0.05
(ii) Oil and Grease	RM2500.00	RM250.00

New Sewage Related Fee

Parameter	Fee per kg of contaminant discharged into inland waters specified in subparagraphs 5(1) (a), (c) or (e) STD A	Fee per kg of contaminant discharged onto any soil or into other inland waters STD B
(i) BOD ₅ at 20°C	RM0.50	RM0.05
(ii) Oil and Grease	RM2500.00	RM250.00
(iii) Ammoniacal Nitrogen	RM500.00	RM50.00

Calculation Example

- **Example:**

- i. **Effluent Characterization**

$$Q = 100\text{m}^3/\text{day}$$

$$\text{BOD5} = 3000\text{mg/L}$$

$$\text{O\&G} = 20\text{mg/L}$$

- ii. **Duration = 100 day to contravene Std. A**

- iii. **Loading**

$$\text{BOD5} = (100\text{m}^3/\text{day} \times 3000 \text{ mg/L})/1000 = 300\text{kg/day}$$

$$\text{O \& G} = (100\text{m}^3/\text{day} \times 20 \text{ mg/L})/1000 = 2 \text{ kg/day}$$

- ii. **Fee Calculation**

From Schedule 13,

Rate of BOD for Std A = RM0.50/kg

Rate of O&G for Std A = RM2,500/kg

Thus;

$$\text{BOD5 fee} = 300\text{Kg/day} \times 100 \text{ day} \times \text{RM}0.50/\text{Kg} = \text{RM } 15,000.00$$

$$\text{O\&G fee} = 2\text{Kg/day} \times 100 \text{ day} \times \text{RM } 2,500/\text{kg} = \text{RM } 500,000.00$$

➤ **Total effluent fee = RM 15,000.00 + RM 100,000.00 = RM 115,000.00**

✓ **So total Fee for contravention license = RM 500+ RM 500,000.00**



Reg.26 : Penalty

Maximum Penalty
RM100,000



≤ 5 yrs
imprisonment



Reg. 27: Revocation

*EQ (SIER),
1979*

- Revoked

*Existing STP,
Std A*

- Shall comply Std A (New)
- 31 Dec 2016

*Existing STP,
Std B*

- Shall comply Std B (New)
- 31 Dec 2019

Exception for communal septic tank & imhoff tank

Presentation Outlines

Introduction

Legal Framework

Industrial Effluent Regulations

Sewage Regulations

SWTS & Landfill Regulations

Conclusion

Environment Quality (SWTS & Landfill) Regulations, 2009



Interpretation

- Leachate
- Landfill
- Solid waste
- Leachate treatment system (STP)
- Leachate collection & removal systems (LCRS)

Application

Reg. 3

Apply to solid waste transfers station & landfills which discharge leachate

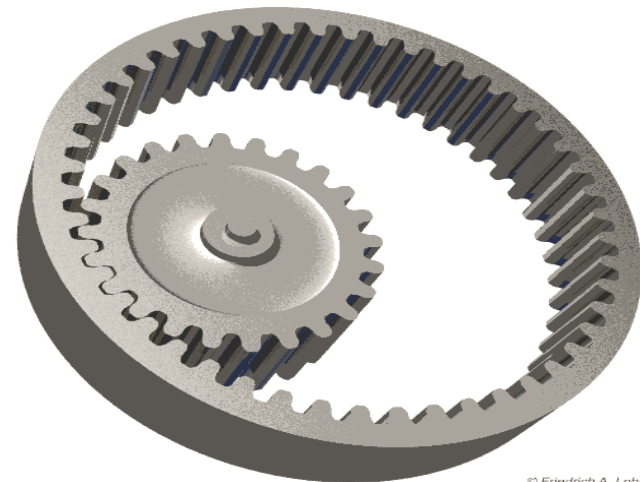
Regulation 4:Notification

Notification of leachate discharge

Form- **First Schedule**

Regulation. 5: Operation of SWTS & Landfill

- Occupier shall controlled
 - Noise, dust or odours
 - Air pollution
 - Pollution of the soil, surface water or ground water
 - Scheduled Wastes



Regulation 6: Landfill gas collection & disposal system



shall operate gas
collection & disposal
system

Regulation 7: Control of Ground Water Pollution

- Ensure that the design and operation of the landfill incorporates measures to prevent and control the pollution to ground water; and
- Establish and operate a ground water monitoring program to monitor the leakage or movement of leachate from the landfill.

Regulation 8: Monitoring of Leachate Discharge

- Ensure that the design and operation of the landfill incorporates measures to prevent and control the pollution to ground water; and
- Establish and operate a ground water monitoring program to monitor the leakage or movement of leachate from the landfill.

Regulation 9: Provision of Leachate System

No person shall operate a solid waste transfer station or landfill without a leachate treatment system.

Regulation 10: Proper operation of Leachate System

- ensure that all components of the leachate treatment system are in good working condition.
- operational characteristics are maintained within the normal range of values commonly used for the treatment of leachate.

Regulation 11: Performance monitoring

- conduct performance monitoring of the components of the leachate treatment system; and
- equip himself or itself with facilities, relevant equipment or instruments for the purpose of conducting performance monitoring of the leachate treatment system

Regulation 12: Competent Person



shall operate by competence person



certified by DG of DOE



Shall be contacted at any time

Regulation 13 Discharge Standard

ACCEPTABLE CONDITIONS FOR DISCHARGE OF LEACHATE

	(1) Parameter	(2) Unit	(3) Standard
(i)	Temperature	°C	40
(ii)	pH Value	-	6.0-9.0
(iii)	BOD ₅ at 20°C	mg/L	20
(iv)	COD	mg/L	400
(v)	Suspended Solids	mg/L	50
(vi)	Ammoniacal Nitrogen	mg/L	5
(vii)	Mercury	mg/L	0.005
(viii)	Cadmium	mg/L	0.01
(ix)	Chromium, Hexavalent	mg/L	0.05
(x)	Chromium, Trivalent	mg/L	0.20
(xi)	Arsenic	mg/L	0.05
(xii)	Cyanide	mg/L	0.05
(xiii)	Lead	mg/L	0.10
(xiv)	Copper	mg/L	0.20
(xv)	Manganese	mg/L	0.20
(xvi)	Nickel	mg/L	0.20
(xvii)	Tin	mg/L	0.20
(xviii)	Zinc	mg/L	2.0
(xix)	Boron	mg/L	1.0
(xx)	Iron	mg/L	5.0
(xxi)	Silver	mg/L	0.10
(xxii)	Selenium	mg/L	0.02
(xxiii)	Barium	mg/L	1.0
(xxiv)	Fluoride	mg/L	2.0
(xxv)	Formaldehyde	mg/L	1.0
(xxvi)	Phenol	mg/L	0.001
(xxvii)	Sulphide	mg/L	0.50
(xxviii)	Oil and Grease	mg/L	5.0
(xix)	Colour	ADMI*	100



Reg. 14: Contravention License

- Application under section 25 EQA;
- Shall follow as required EQ (Licensing), 1977
- Submit with
 - A report on leachate characterization study;
and
 - Application and leachate-related fee as specified
in regulation 27

Reg. 15 : Method of Sampling & Analysis

- Method of analysis (**Third Schedule**)
 - *APHA Method 21 Ed.* or
 - CFR, Chap. 40 Subchap. D, part 136
- *Grab sampling method*

Reg. 16 : Point of Discharge

- Must comply (**Fourth Schedule**)
 - *Indicate on layout plans*
 - *layout plans Grab sampling method*
 - *Any changes shall notify respective DOE within 30 days*

FOURTH SCHEDULE

(Regulation 16)

SPECIFICATION OF POINT OF DISCHARGE OF LEACHATE

- The discharge point is located within the boundary of the landfill, immediately after the final unit operation or unit process of the leachate treatment system.
- The location of the discharge point is easily accessible and does not pose any safety hazards to personnel performing site inspection or leachate sampling.
- The leachate is discharged through a pipe, conduit or channel to facilitate leachate sampling.
- The discharge point is physically identified by installing a metal identification sign which reads “Final Discharge Point”.
- The discharge point and its surrounding are properly maintained to be free from any obstruction that may pose difficulty or hazards during site inspection or leachate sampling.

Reg. 17 : Prohibition against leachate discharge or release through by-pass

- Strictly prohibited

Reg. 18 : Dillution of leachate

- Strictly prohibited

Per. 19: Spill or accidental discharge

- Should notify to DOE within 6 hour
- Owner responsible to stop or prevent the spill or leakages
- DOE have the right to specify the method of containment
- DOE have the right to claim clean up cost to the owner

Reg. 20 : Making changes that alter quality of leachate

- Cannot make any changes without prior written approval of the Director General

Reg. 21 : Reporting changes in information furnished for purposes of application for licence

- Within seven days of the occurrence of any material change in any information furnished in his application

Reg.: 22 Display of License

- Display at appropriate place

Reg. 23: Continuance of License Condition

- 14 day from the material changes
- New owner shall follow the existing condition

Per. 24 Record Keeping



- operation, maintenance and performance monitoring of the leachate treatment system;
- implementation of surface and ground water monitoring program;
- implementation of landfill gas monitoring program;
- implementation of the monitoring program for the leachate collection and removal system (*LCRS*) ;
- implementation of waste control program to ensure scheduled wastes are not accepted for disposal; and
- leachate discharge monitoring data.

Per. 25 Personnel Training



- All the training detail shall be recorded
- Shall available during inspection

Per. 26: Owner or occupier to render assistance during inspection

- Appropriate assistant during inspection



Reg. 27 Fee for Licence

- (New/renew) fee RM 500.00
- (Transfer) fee RM 100.00
- Leachate related fee **Fifth Schedule**



Reg. 28 Waiver of Fee

Only minister could approve the fee waiver

FIFTH SCHEDULE

(Regulation 27)

METHOD OF COMPUTING LEACHATE-RELATED LICENCE FEE

Parameter	Fee per kg of contaminant discharged
(i) BOD ₅ at 20°C	RM 0.50
(ii) Ammoniacal Nitrogen	RM 500.00
(iii) Mercury	RM 2500.00
(iv) Cadmium	RM 2500.00
(v) Chromium, Hexavalent	RM 2500.00
(vi) Chromium, Trivalent	RM 2500.00
(vii) Arsenic	RM 2500.00
(viii) Cyanide	RM 2500.00
(ix) Lead	RM 2500.00
(x) Copper	RM 2500.00
(xi) Manganese	RM 2500.00
(xii) Nickel	RM 2500.00
(xiii) Tin	RM 2500.00
(xiv) Silver	RM 2500.00
(xv) Selenium	RM 2500.00
(xvi) Barium	RM 2500.00
(xvii) Fluoride	RM 2500.00
(xviii) Formaldehyde	RM 2500.00
(xix) Zinc	RM 500.00
(xx) Boron	RM 500.00
(xxi) Iron	RM 500.00
(xxii) Phenol	RM 500.00
(xxiii) Sulfide	RM 500.00
(xxiv) Oil and Grease	RM 500.00



Reg.29 :Penalty

Maximum Penalty
RM100,000



≤ 5 yrs
imprisonment



Reg. 28: Revocation

- The Environmental Quality (Sewage and Industrial Effluents) Regulations 1979 [P.U. (A) 12/1979] is revoked (hereinafter referred to as “the revoked Regulations”).

<http://www.doe.gov.my/eimas>



COURSE SCHEDULE 2017																	
NO.	COURSE CODE	COURSE TITLE	COURSE FEE (RM)	NO. OF DAYS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
4	CePIETSO (BP)	Course for Certified Environmental Professional in the Operation of Industrial Effluent Treatment Systems (Biological Processes) (Inclusive of 1 day examination)	5,000	6		26 Feb – 03 Mar	19 – 24	16 – 21			16 – 21	13 – 18	24 – 29	01 – 06	19 – 24	10 – 15	
		Examination is on last day of course (Re-sit for practical or theory or both will be charged RM400)		1													
		For registration, kindly contact: Petronas Technical Training Sdn Bhd (Tel : 09 6686 000/ Fax : 09 6686 288), Website : http:// www.instep.my Person in charge : [Mr. Ahmad Yusuf b Hussain (Email : yusuf.hussain@petronas.com.my)]/[Ms. Ruslina Sapie (Email : ruslina.sapie@petronas.com.my)]/(09-668 6225)]															
5	CePIETSO (PCP)	Course for Certified Environmental Professional in the Operation of Industrial Effluent Treatment Systems (Physical Chemical Processes) (Inclusive of 1 day examination)	5,000	6		16 – 21	13 – 18	27 Feb – 04	03 – 08		10 – 15		14 – 19	25 – 30	09 – 14	06 – 11	04 – 09
		Examination is on last day of course (Re-sit for practical or theory or both will be charged RM400)		1				20 – 25	24 – 29	15 – 20		24 – 29			23 – 28		
		For registration, kindly contact: Enviro Academy Sdn Bhd (Tel: 03 5131 8032) Person in charge : [Mr. Saiful Islam (Email : sailf@enviroacademy.com)]/(016 333 6347)]/[Mr. Raffles (Email : raffles@enviroacademy.com)]/(016 619 0238)]															

Conslusion

Toward self regulation

*Care our nation by care of our
environment*

*Our future generation depend on our
hand*

**Thank you for your
attention!**



zaidi@doe.gov.my