The 21st WEPA Annual Meeting
September 8, 2025 in Putrajaya, Malaysia

Updates on Water Environment Governance in Industrial Wastewater Management

PHILIPPINES

ENGR. MICHIEKO SUMIDA-SIBUNGA
Officer in Charge – Water Quality Management Section
Environmental Quality Management Division
Environmental Management Bureau
Department of Environment and Natural Resources

1.1 Regulatory framework for wastewater management

Philippine Clean Water Act of 2004 (RA 9275)

Implementing Agency: Department of Environment and Natural Resources (DENR) through the Environmental Management Bureau (EMB)

Key implementing instruments:

- DAO 2005-10: Implementing Rules and Regulations of RA 9275
- DAO 2016-08: Water Quality Guidelines and General Effluent Standards
- DAO 2021-19: Revised Guidelines on Compliance Monitoring
- DAO 2025-24: Guidelines for the designation of waterbodies as Non-Attainment and Attainment Areas

1.2 Basic regulations on industrial wastewater management

Subject to regulation	
Types of industries	☒ All industries ☐ Selected industries
Applicable effluent volume	No limit, but DAO 2005-10 (Rule 14.5) outlines a tiered structure for annual permit fees based on the volume of effluent discharged per day.
How are the standard values set?	☒ Uniform ☐ Depend on sectors ☐ Other (specify:)
Possibilities of setting more stringent standards	☒ Yes ☐ No
Transition periods, provisional standards, or other (to give industries time to adapt to emission standards)	☒ Transition period (grace period as per DAO 2016-08) ☐ Provisional standards ☐ Other (specify:)
Relevant laws to regulate effluent qualities from industries	•Republic Act No. 9275 (Clean Water Act) •DENR Administrative Order (DAO) No. 2005-10 / DAO No. 2016-08 / DAO No. 2021-19 - WQG & General Effluent Standards

Monitoring and inspection	
Monitoring method	☒ Self (automated) ☒ Gov. or 3rd party
Monitoring parameter(s)	DAO 2016-08 specifies that the "significant effluent quality parameters that industries must monitor."
Frequency	Self-monitoring reports (SMRs) – quarterly submission
Inspecting agency	Department of Environment and Natural Resources – Environmental Management Bureau (EMB) or Laguna Lake Development Authority (LLDA)
Inspection	Traditional on-site inspection then if violations are identified, EMB can issue a Notice of Violation to the establishment.
Reporting obligation	Yes through Self-Monitoring Report (SMR) system
Reporting to (whom)	EMB or LLDA
Number of regulated facilities	22,000 Valid Discharge Permit
How to identify the facility number	Through wastewater discharge permit or DENR ID Number or Company Registration System (CRS)

1.3 General Effluent Standards

Prescribed under **DENR Administrative Order (DAO) No. 2016-08, or the** "Water Quality Guidelines and General Effluent Standards of 2016."

These standards establish the **maximum allowable concentrations** of specific **pollutants** in wastewater that can be discharged to water bodies or land. They apply to **all point sources** of pollution, **new or existing**, **regardless of industry category**, unless **industry-specific standards** are provided.

Parameter	Unit	Water Body Classification								
		AA	A	B	C	D	SA	SB	SC	SD
Ammonia as NH_3-N	**mg/L**	**NDA**	**2**	**3**	**4**	**9**	**NDA**	**3**	**4**	**9**
BOD	mg/L	NDA	20	30	50	120	NDA	30	100	150
Boron	**mg/L**	**NDA**	**4**	**4**	**4**	**12**	**NDA**	**4**	**25**	**100**
Chloride	mg/L	NDA	350	350	450	500	NDA	n/a	n/a	n/a
COD	mg/L	NDA	60	60	100	200	NDA	60	200	300
Color	TCU	NDA	100	100	150	300	NDA	100	150	300
Cyanide as Free Cyanide	mg/L	NDA	0.14	0.14	0.2	0.2	NDA	0.04	0.2	0.4
Fluoride	mg/L	NDA	2	2	2	4	NDA	3	3	6
Nitrate as NO_3-N	mg/L	NDA	14	14	14	30	NDA	20	20	30
pH (Range)		NDA	6.0-9.0	6.0-9.0	6.0-9.4	5.5-9.5	NDA	6.5-9.0	6.0-9.0	5.5-9.5
Phosphate	**mg/L**	**NDA**	**1**	**1.5**	**4**	**10**	**NDA**	**2**	**4**	**10**
Selenium	mg/L	NDA	0.02	0.02	0.04	0.08	NDA	0.02	0.2	0.4
Sulfate	**mg/L**	**NDA**	**500**	**500**	**550**	**1000**	-	-	-	-
Surfactants (MBAS)	mg/L	NDA	2	3	15	30	NDA	3	15	30

1.3 General Effluent Standards (GES)

For Strong Wastewater

Applicable only if the establishment provides proof:

- Influent values for for 12 months are within Table 10 of DAO 2016-08
- Laboratory result must be from DENR Recognized Laboratory

Influent BOD (mg/L)	Unit	Class C	Class D	Class SC	Class SD
3,000 to <6,500	mg/L	100	150	100	150
6,500 to <10,000	mg/L	200	300	200	300
10,000 to 30,000	mg/L	600	1,000	600	1,000
>30,000	mg/L	900	1,500	900	1,500

1.4 Basis for the standards

GES Applies to all establishments **discharging wastewater** to receiving bodies of water or land.

Standards depend on the water body classification:

- Class AA: Public Water Supply I
- Class A : Public Water Supply II
- Class B: Recreational Waters
- Class C: Agriculture
- Class D: Navigational Waters
- Class SA: Protected Areas
- Class SB: Recreational Waters
- Class SC: Fisheries
- Class SD: Navigational Waters

Basis	*Description*
Water Quality Guidelines	To preserve classification of receiving water bodies
Toxicological Data	Protection of human and ecological health
Stakeholder Input	Consultations with affected sectors
Risk-Based Approach	Adjusted per use/class of receiving water

OTHER CONSIDERATION

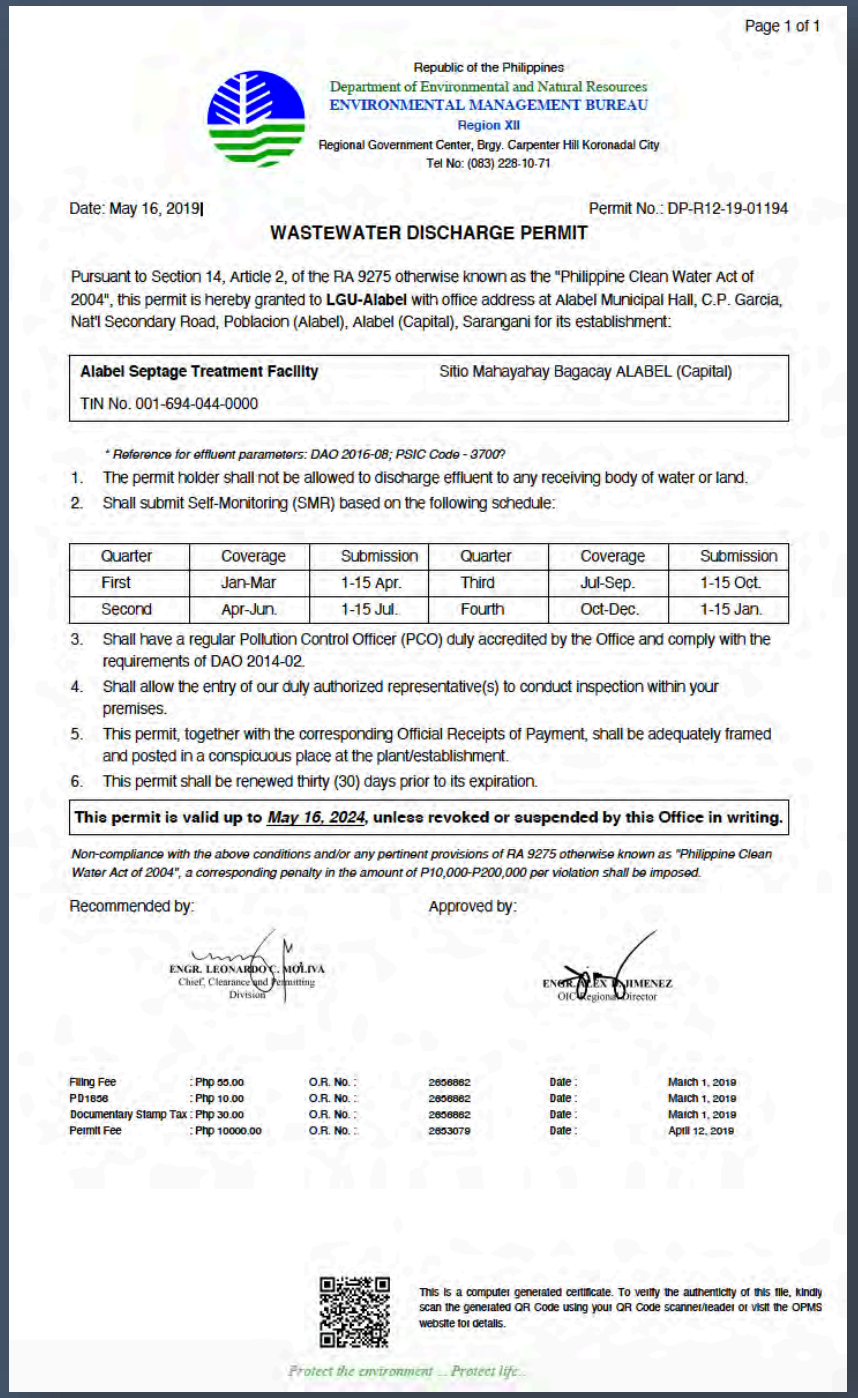
Technology-Based	Based on achievable treatment performance
International Benchmarks	Adapted from global practices esp ASEAN

1.5 Measures taken to improve the compliance by industries

- **Securing** a valid Wastewater **Discharge Permit**
- **Compliance** with Wastewater Discharge Permit Conditions and Applicable Effluent Standards
    - Note: *should be based on effluent analysis through EMB-Recognized Laboratory*
- Submission of Completely Fill-out Module 3 of the Self-Monitoring Report (SMR)

WASTEWATER DISCHARGE PERMIT
Sec 14 RA 9475/ Rule 14 of IRR

- A legal authorization granted to the owners or operators of facilities by the DENR to discharge wastewater;
- It shall specify among others the quantity and quality of effluent of the said facilities allowed to be discharged into a specific waterbody
- The annual fee is from Php 2,000- Php 3,900 depending on the volumetric rate of discharge and if with heavy metals
- Validity: up to 5 years



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Republic of the Philippines
Department of Environmental and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Region XII
Regional Government Center, Brgy. Carpenter Hill Koronadal City
Tel No: (083) 228-10-71

Date: May 16, 2019 | Permit No.: DP-R12-19-01194

WASTEWATER DISCHARGE PERMIT

Pursuant to Section 14, Article 2, of the RA 9275 otherwise known as the "Philippine Clean Water Act of 2004", this permit is hereby granted to **LGU-Alabel** with office address at Alabel Municipal Hall, C.P. Garcia, Nat'l Secondary Road, Poblacion (Alabel), Alabel (Capital), Sarangani for its establishment:

Alabel Septage Treatment Facility	Sitio Mahayahay Bagacay ALABEL (Capital)
TIN No. 001-694-044-0000	

** Reference for effluent parameters: DAO 2016-08; PSIC Code - 3700*

1. The permit holder shall not be allowed to discharge effluent to any receiving body of water or land.
2. Shall submit Self-Monitoring (SMR) based on the following schedule:

Quarter	Coverage	Submission	Quarter	Coverage	Submission
First	Jan-Mar	1-15 Apr.	Third	Jul-Sep.	1-15 Oct.
Second	Apr-Jun.	1-15 Jul.	Fourth	Oct-Dec.	1-15 Jan.

3. Shall have a regular Pollution Control Officer (PCO) duly accredited by the Office and comply with the requirements of DAO 2014-02.
4. Shall allow the entry of our duly authorized representative(s) to conduct inspection within your premises.
5. This permit, together with the corresponding Official Receipts of Payment, shall be adequately framed and posted in a conspicuous place at the plant/establishment.
6. This permit shall be renewed thirty (30) days prior to its expiration.

This permit is valid up to *May 16, 2024*, unless revoked or suspended by this Office in writing.

Non-compliance with the above conditions and/or any pertinent provisions of RA 9275 otherwise known as "Philippine Clean Water Act of 2004", a corresponding penalty in the amount of P10,000-P200,000 per violation shall be imposed.

Recommended by:

ENGR. LEONARDO C. MOLIVA
Chief, Clearance and Permitting Division

Approved by:

ENGR. GLEN C. JIMENEZ
OIC-Regional Director

Filing Fee	: Php 50.00	O.R. No. :	2656862	Date :	March 1, 2019
PD1856	: Php 10.00	O.R. No. :	2656862	Date :	March 1, 2019
Documentary Stamp Tax	: Php 30.00	O.R. No. :	2656862	Date :	March 1, 2019
Permit Fee	: Php 10000.00	O.R. No. :	2653079	Date :	April 12, 2019

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Protect the environment ... Protect life...

WASTEWATER DISCHARGE PERMIT - OPMS

Application Date

9/25/2017 — 8/28/2025

EMB Region

All

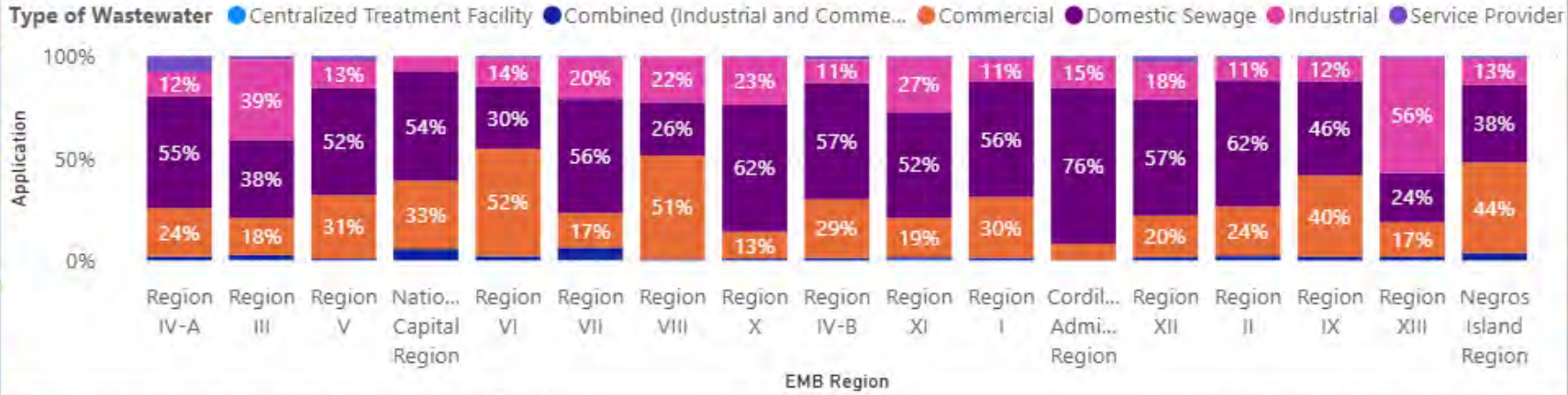
Office Name

Search

22K

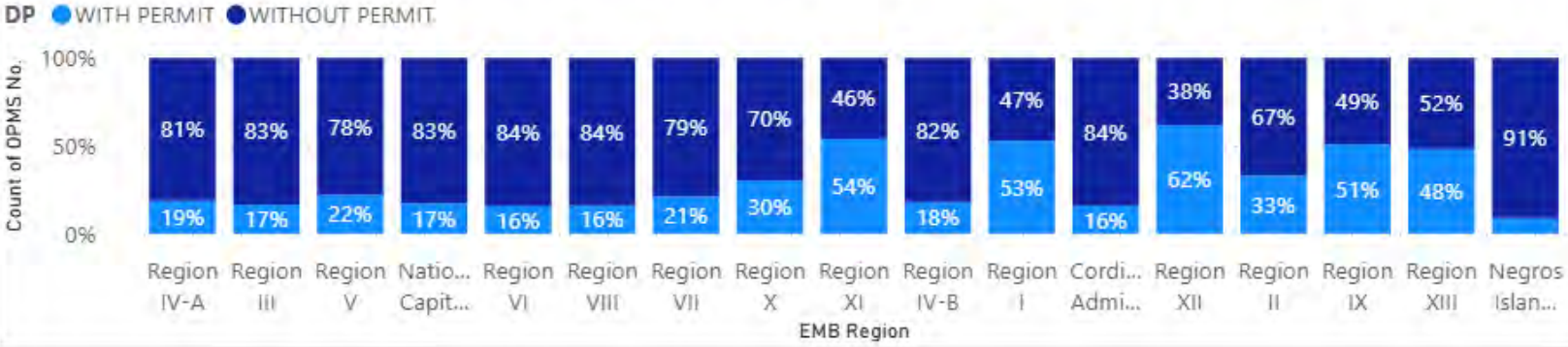
Valid Permit

Type of Wastewater by Region

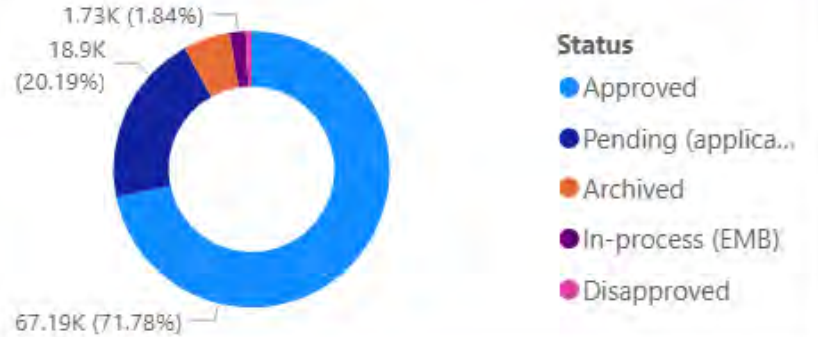


Applications by Region

Percentage of WWDP Applications from Establishments by Region

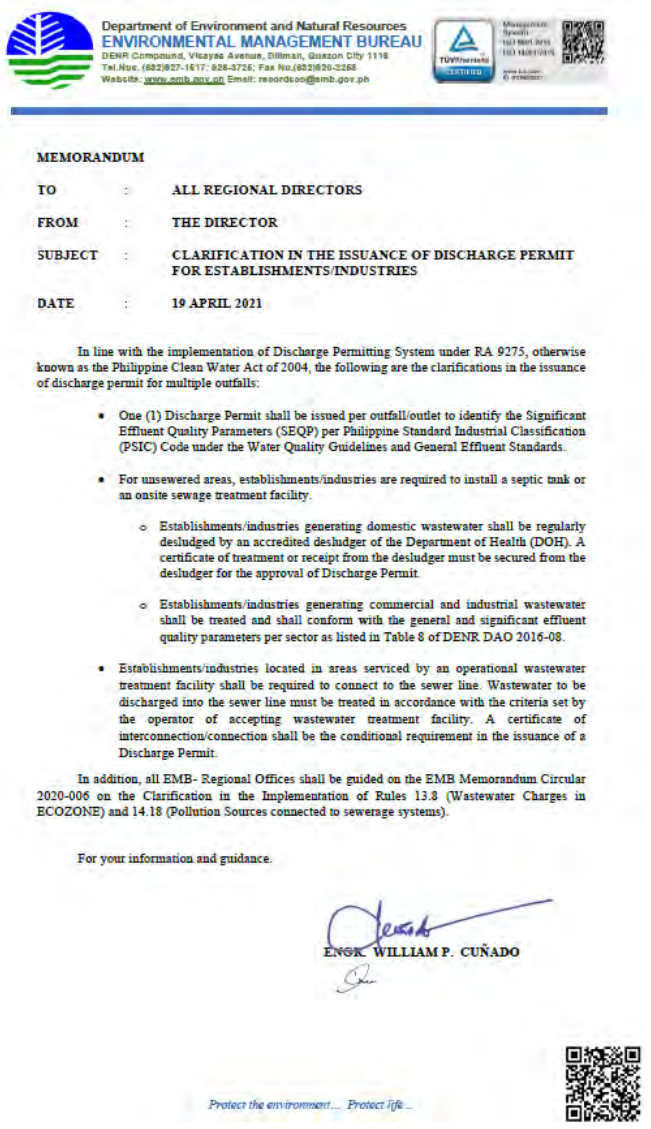


Application by Status



CLARIFICATION IN THE ISSUANCE OF DISCHARGE PERMIT FOR ESTABLISHMENTS/INDUSTRIES 19 Apr 2021 Memorandum

- One (1) Discharge Permit will be issued per outfall/outlet
  - Identify the SEQP
  - Quantity and quality of effluent
- In unsewered areas:
  - Install a septic tank (DOH AO 2019-0047) or onsite STP
  - Must be regularly desludged by DOH-accredited desludger (DILG MC 2019-62)
  - Certificate of treatment for DP approval.
- Commercial and industrial wastewater:
  - Must be treated to meet the SEQP
- Serviced by operational WTF:
  - Must connect to the sewer line.
  - Wastewater discharge must meet the criteria set by the operator of the accepting treatment facility.
  - Certificate of connection



Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
DENR Compound, Visayas Avenue, Diliman, Quezon City 1116
Tel.Nos. (632)927-1417; 928-3726; Fax No.(632)920-2268
Website: www.emb.gov.ph Email: recordsoc@emb.gov.ph

MEMORANDUM

TO : **ALL REGIONAL DIRECTORS**

FROM : **THE DIRECTOR**

SUBJECT : **CLARIFICATION IN THE ISSUANCE OF DISCHARGE PERMIT FOR ESTABLISHMENTS/INDUSTRIES**

DATE : **19 APRIL 2021**

In line with the implementation of Discharge Permitting System under RA 9275, otherwise known as the Philippine Clean Water Act of 2004, the following are the clarifications in the issuance of discharge permit for multiple outfalls:

- One (1) Discharge Permit shall be issued per outfall/outlet to identify the Significant Effluent Quality Parameters (SEQP) per Philippine Standard Industrial Classification (PSIC) Code under the Water Quality Guidelines and General Effluent Standards.
- For unsewered areas, establishments/industries are required to install a septic tank or an onsite sewage treatment facility.
  - Establishments/industries generating domestic wastewater shall be regularly desludged by an accredited desludger of the Department of Health (DOH). A certificate of treatment or receipt from the desludger must be secured from the desludger for the approval of Discharge Permit.
  - Establishments/industries generating commercial and industrial wastewater shall be treated and shall conform with the general and significant effluent quality parameters per sector as listed in Table 8 of DENR DAO 2016-08.
- Establishments/industries located in areas serviced by an operational wastewater treatment facility shall be required to connect to the sewer line. Wastewater to be discharged into the sewer line must be treated in accordance with the criteria set by the operator of accepting wastewater treatment facility. A certificate of interconnection/connection shall be the conditional requirement in the issuance of a Discharge Permit.

In addition, all EMB- Regional Offices shall be guided on the EMB Memorandum Circular 2020-006 on the Clarification in the Implementation of Rules 13.8 (Wastewater Charges in ECOZONE) and 14.18 (Pollution Sources connected to sewerage systems).

For your information and guidance.

ENGR. WILLIAM P. CUÑADO

Protect the environment... Protect life...

Certificate of Interconnection

Establishments/industries located in areas serviced by an operational wastewater treatment facility shall be required to connect to the sewer line. Wastewater to be discharged into the sewer line must be treated in accordance with the criteria set by the operator of the accepting wastewater treatment facility. A certificate of interconnection/connection shall be the **conditional requirement** in the issuance of a Discharge Permit.

MANILA WATER
CARE IN EVERY DROP

Certificate of Separate Sewer Coverage

(Commercial/Industrial)

Manila Water Company, Inc. (MWCI), as the Concessionaire of Metropolitan Waterworks and Sewerage System (MWSS) for the East Zone of Metro Manila, issues this certificate to:

EMB - NCR

Address: National Ecology Compound, East Ave. Diliman ,Quezon City
CAN: 11201380
Date Issued: May 26, 2021

The above mentioned is inter-connected to the separate sewer system of MWCI conveyed to East Ave STP located at East Ave., East Triangle, Brgy. Central, Quezon City and is subject to random effluent sampling. Effluent characteristics shall always comply to the following limitations:

PARAMETER	VALUE
Biological Oxygen Demand (BOD)	500
Chemical Oxygen Demand (COD)	700
Total Suspended Solids (TSS)	200
Oil and Grease (O&G)	100

The above **CONDITIONS** are for strict compliance. Failure to do so shall be subject to revocation of this certificate.

This Certificate of Separate Sewer Coverage is valid up to 1 year only and shall be renewed within thirty (30) days before the date of expiration.

Prepared By:

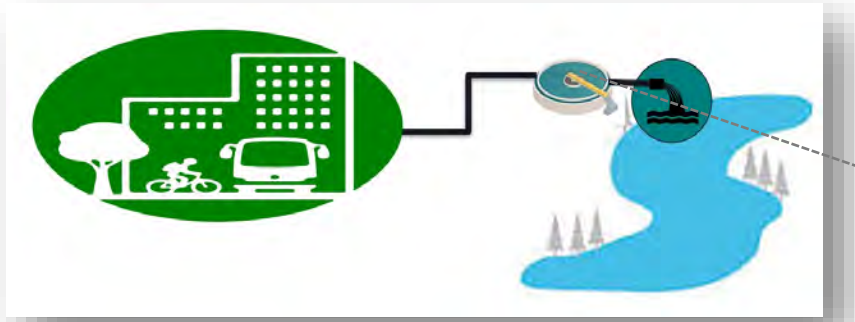
FERDINAND G. SIBOLBORO
Sewer Collection System Manager
Northwest Grid
Wastewater Operations Division

Approved By:

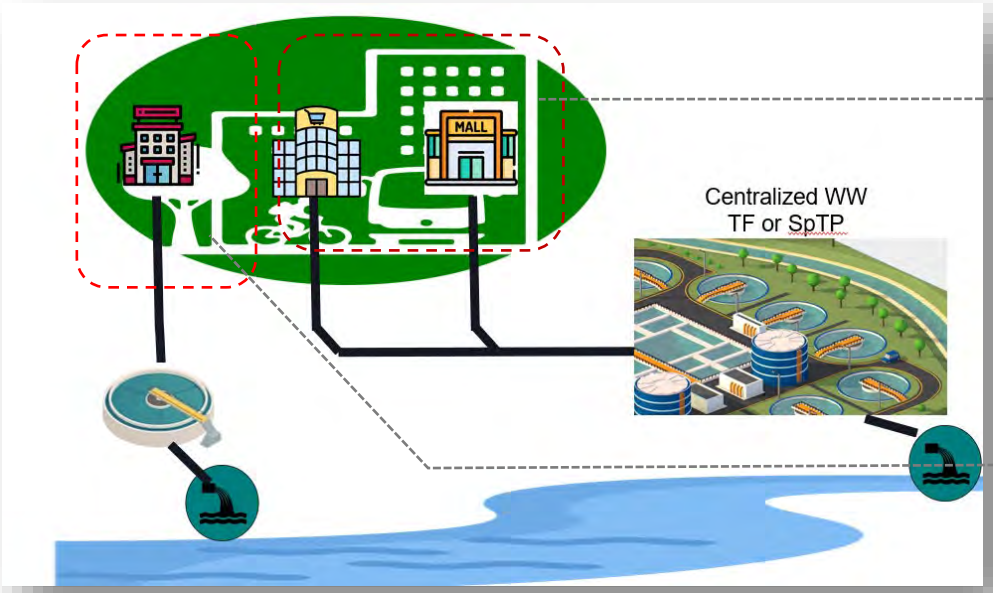
SHARON PARKER B. CERBITO
Grid Facilities Head
Northwest Grid
Wastewater Operations Division

MANILA WATER COMPANY, INC
MWSS Administration Building, 489 Katipunan Road, 1105 Balara, Quezon City, Philippines

MC 2020-006: CLARIFICATION IN THE IMPLEMENTATION OF RULES 13.8 AND 14.18 OF DENR ADMINISTRATIVE ORDER NO. 2005-10



Business District /ECOZONE: DP FEE & Wastewater Charge



Connected Locator: DP FEE

DP FEE & Wastewater Charge

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
DENR Compound, Visayas Avenue, Diliman, Quezon City 1116
Telephone Nos: 927-15-17, 928-20-96
Email: emb@emb.gov.ph

FEB 12 2020

MEMORANDUM CIRCULAR NO. 006
Series of 2020

SUBJECT : **CLARIFICATION IN THE IMPLEMENTATION OF RULES 13.8 AND 14.18 OF DENR ADMINISTRATIVE ORDER NO. 2005-10**

Pursuant to Republic Act No. 9275 also known as the Philippine Clean Water Act of 2004 and DENR Administrative Order (DAO) No. 2005-10 or the Implementing Rules and Regulations of RA 9275, the following are the provisions of Rules 13.8 (Wastewater Charges in ECOZONE) and 14.8 (Pollution Sources Connected to Sewerage Systems) of DAO 2005-10:

1. The wastewater discharge fee shall be paid by the operator of the wastewater treatment plant (WTP) located within ECOZONES. Provided, that industries within ECOZONES that are not connected to the WTP shall be liable for the wastewater charges individually.
2. Pollution sources currently discharging to existing sewerage systems with operational wastewater treatment facilities shall be exempt from the permit requirement. Provided that, in the absence of, or pending the establishment of a sewerage system, pollution sources shall be covered by the permit requirement.

As such, the following are the clarification in the implementation of Rules 13.8 and 14.8 of DAO 2005-10:

- Water service providers, Economic Zones (ECOZONES), Business Districts, Industrial Estates and similar business parks shall put up adequate WTP, secure a Discharge Permit (DP), and pay the corresponding wastewater discharge fee.
- Malls and buildings that are not connected to centralized WTP are similarly required to put up their WTP and secure DP.
- Locators and establishments that are not connected to existing WTP are required to secure Discharge Permit (DP) individually and shall be liable for its wastewater charges.
- Locators and establishments/stores that are connected to existing WTP of ECOZONES and malls/buildings, respectively are exempted from securing DP. However, a certificate of interconnection/connection must be issued by the operator of the said WTP and said certificate must be submitted to the concerned EMB Regional Office.

This Memorandum Circular shall take effect immediately.

Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Office of the Director
MC No. 2020-006

ENGR. WILLIAM P. CUÑADO

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1.6 Compliance: Incentives and Penalties

Incentive	
Appeals to the public, such as awards and ranking	Philippine Environment Partnership Program (PEPP): For industries with superior environmental performance (beyond compliance) Rivers For Life Award (for PENRO/CENRO, LGUs and communities) Outstanding Water Quality Management Area Award (WQMAs) Recognition of Partners for Adopt an Estero Waterbody Program
Financial incentive	Only RIVERS for Life Award has prize money, but is not focused on industries. PEPP is focused on industries but only regulatory incentives are given. Adopt an Estero Waterbody Program may be for industry partners but no monetary award, only plaque of recognition
Institutional incentives such as preferential approval	PEPP: submission of Self Monitoring Report from 4 times a year to 2 times a year, extension of Validity of Permit
Others	

Penalty	
Imprisonment	Failure to clean-up contamination / pollution : 2 to 4 years imprisonment if refusal results in serious injury, death, or irreversible contamination: 6 to 12 years imprisonment
Fine	Violation to prohibited acts (Sec 27 of RA 9275) e.g. Non compliance to effluent standard is Php 25,937.42 to Php 518,748.49 per day of violation. Failure to clean-up is **₱50,000 to ₱100,000** per day Death or irreversible contamination is Php 500,000 per day
Other	Cease and Desist Order

Philippine Environment Partnership Program (PEPP) Rule 26 of RA 9275 IRR

- DAO 2003 -14 - Creating the PEPP to support Industry Self-Regulation towards Improved Environmental Performance
- Design to give recognition and incentives to individual establishments that go beyond compliance and demonstrate superior environmental performance (Track 1 Category)

  - ✓ High-profile Recognition Reward
  - ✓ Regulatory Assistance
  - ✓ Fiscal Incentives

Prohibited Acts (*Sec 27 RA 9275*)

Sec 27	Description
(a)	Discharging or depositing materials into water bodies that cause pollution or impede water flow.
(b)	Polluting groundwater by discharging or allowing substances to seep into the soil
(c)	Operating facilities discharging water pollutants without valid permits
(d)	Dumping infectious medical waste into seawater, unless in emergency situations
(e)	Unauthorized transport or dumping of sewage sludge or solid waste
(f) & (g)	Discharging prohibited chemicals or pollutants (RA 6969) into water bodies.
(h)	Operating wastewater facilities in violation of environmental regulations (PD 1586)
(i)	Noncompliance with discharge permit requirements
(j)	Local Government Unit (LGU) noncompliance with Water Quality Management Plan
(k), (l), & (m)	Refusal to allow Department inspections, access to reports, or designation of pollution control officers
(o)	Using booster pumps or tampering with water supply, impairing water quality.

Fines, Damages, and Penalties (*Sec 28 RA 9275*)

- **Fines of ₱10,000 to ₱200,000** per day of violation (increased by 10% every 2 years), and possible closure or suspension upon Pollution Adjudication Board (PAB) recommendation
- **2 to 4 years imprisonment** and **irre**of violation for failure to clean up
- **6 to 12 years** imprisonment and **₱500,000 per day** of violation if refusal results in serious injury, death, or irreversible contamination

PAB Resolution 2021-05 Guidelines on the graduated schedule under the Philippine Clean Water Act and its Implementing Rules and Regulations

Table 1. Minimum and maximum amount of fines under R.A. 9275 subject to corresponding biennial adjustment of 10% starting from its year of effectivity.

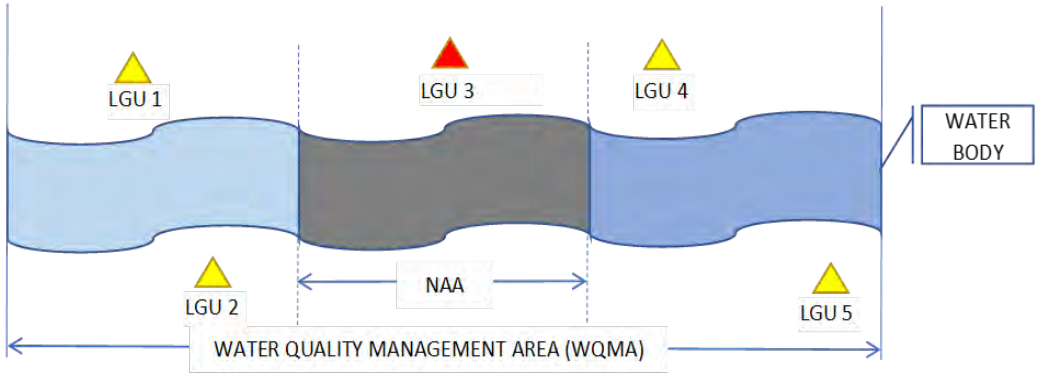
Year	Minimum	Maximum
2004	10,000.00	200,000.00
2005	10,000.00	200,000.00
2006	11,000.00	220,000.00
2007	11,000.00	220,000.00
2008	12,100.00	242,000.00
2009	12,100.00	242,000.00
2010	13,310.00	266,200.00
2011	13,310.00	266,200.00
2012	14,641.00	292,820.00
2013	14,641.00	292,820.00
2014	16,105.10	322,102.00
2015	16,105.10	322,102.00
2016	17,715.61	354,312.20
2017	17,715.61	354,312.20
2018	19,487.17	389,743.42
2019	19,487.17	389,743.42
2020	21,435.89	428,717.76
2021	21,435.89	428,717.76
2022	23,579.48	471,589.54
2023	23,579.48	471,589.54
2024	25,937.42	518,748.49
2025	25,937.42	518,748.49
2026	28,531.17	570,623.34
2027	28,531.17	570,623.34
2028	31,384.28	627,685.68
2029	31,384.28	627,685.68
2030	34,522.71	690,454.24

1.7 Other relevant information on industrial wastewater management

DAO 2025-24: Guidelines for the designation of waterbodies as Non-Attainment Areas (NAA) and Attainment Areas (AAs) and Procedures for monitoring, restoration, revival, and rehabilitation of initially designated NAAs

Designation of waterbodies (or a portion thereof)

- With exceedance to the water quality guidelines as **Non-attainment Areas**
- rehabilitated and conforms with the water quality guidelines as an **Attainment Area**



Basis for Designation of NAA

calculated annual concentration of specific pollutants (parameter of concern/ qualifying parameter) that has already **exceeded water quality guidelines, for three (3) consecutive years**

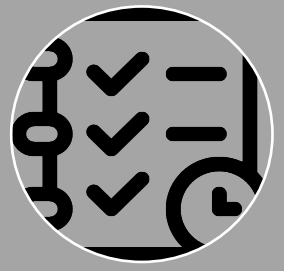
Waterbody profile, location, sources of pollution, other general information

Basis for Designation of AA

conformance to the WQG per calculated **annual concentration** of specific pollutants (parameter of concern/ qualifying parameter) for **one (1) year**

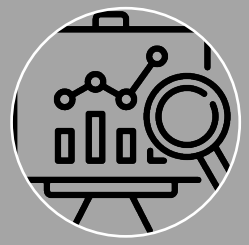
Action PLANS

WQMA Action Plan	NAA Action Plan	Contingency Plan



To keep water quality within the Water Quality Guidelines or Criteria conforming to the water body's classification

it covers the actions that will be undertaken for the next three (3) years to **return** the water quality of the designated NAA to its classification.



A plan with **stricter** course of action that serves as a **backup plan** or "Plan B" if the waterbody have no signs of achieving the WQG before its third year of implementation.

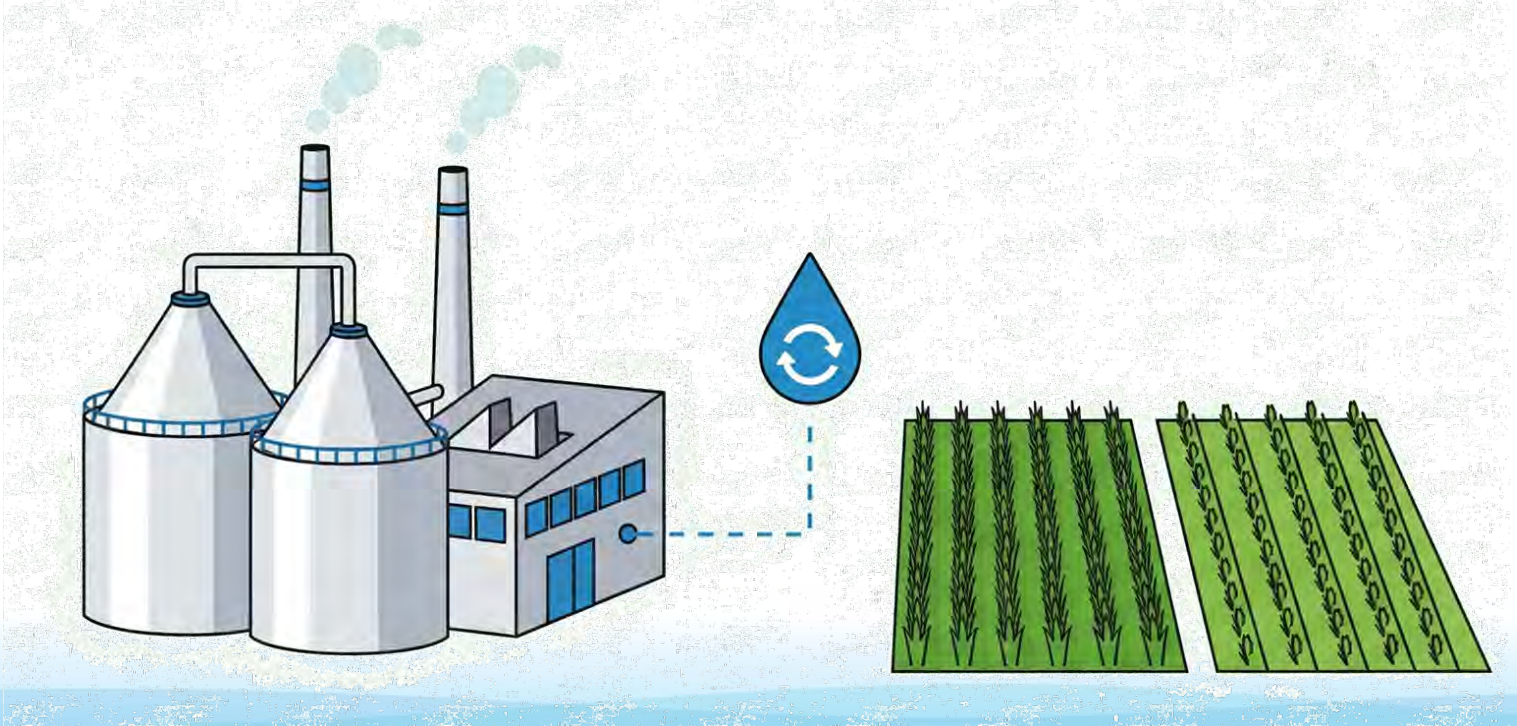
Non – Attainment Area

Formulation:
Pollution Reduction Strategies i.e. upgrading of WTF,

Formulation:
Stricter Pollution Control Measures i.e. Stricter Effluent Standard, mandatory installation of advanced treatment technologies, closure of establishment

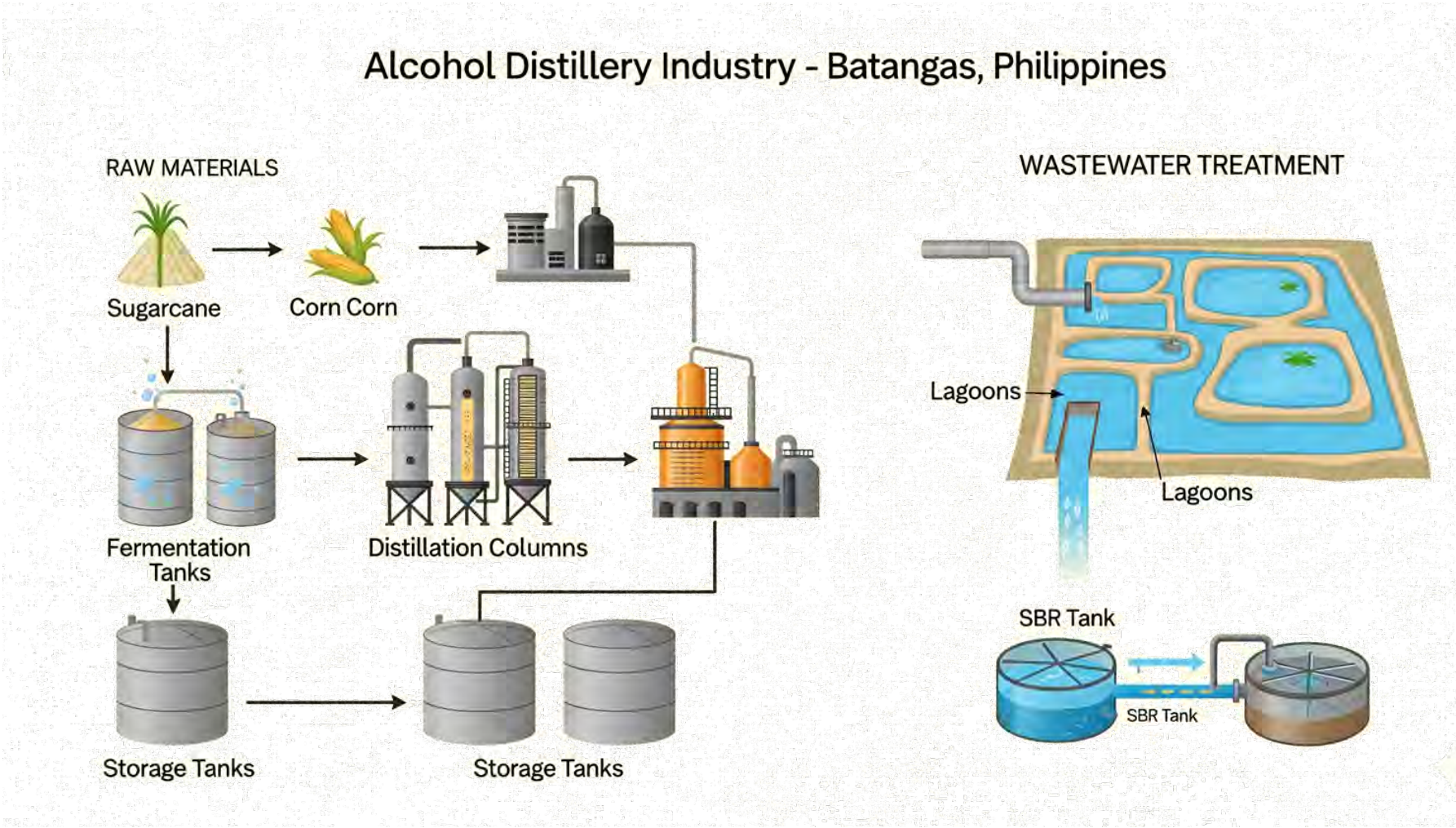
2. Case Study: Alcohol Distillery Wastewater Reuse in Agriculture (Philippines)

- Industry: Ethanol and alcohol manufacturing (distillery)
- Location: Batangas, Philippines
- Focus: Investigation of **wastewater reuse as fertilizer** under the guise of “pagdidilig” (free liquid fertilization program)



2.1 Selected Industry

- Distillery industry produces high-strength wastewater (influent BOD > 30,000 mg/L)
- Treatment system includes:
  - 9 HDPE-lined lagoons
  - Sequencing Batch Reactor (SBR)
  - Evaporator plant (rainy season use)
- Treated wastewater distributed to farmers as **liquid fertilizer**

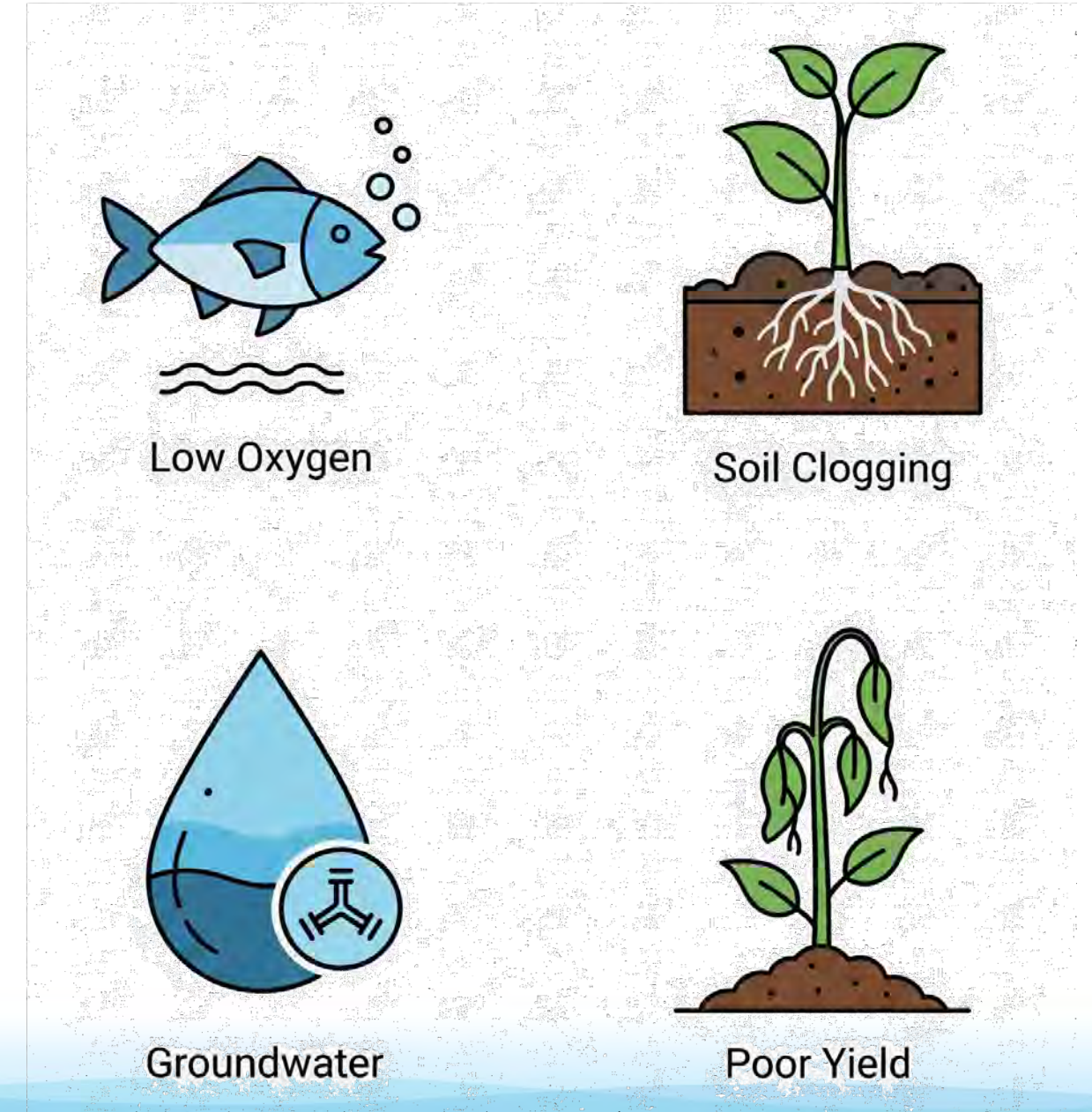


2.2 Background of the Case

- Complaint received: alleged **illegal discharge of strong wastewater** under guise of “pagdidilig”
- Farmers claimed **soil infertility** and possible discharges to river
- EMB investigation:
- Site inspection of lagoons and drainage
- Sampling at influent, effluent, digester overflow
- Stakeholder consultations (LGU, barangay, farmers)
- **Concern:** Was the wastewater adequately treated and monitored before reuse?

2.3 Impacts on the Water Environment

- Risks of strong wastewater:
  - 🌊 Oxygen depletion in rivers → fish kills
  - 🌱 Soil clogging and poor crop yield if untreated
  - 💧 Possible groundwater contamination
  - Storm channel observed with wastewater-like liquid
- Farmers reported soil infertility near lagoon area



2.4 Regulatory Framework in the Philippines

Industry generating **Wastewater**

Wastewater generated **reuse for agricultural purposes** (e.g., irrigation, fertilization, aquaculture)

Certificate of Safe Reuse of Treated Wastewater from the **(DA-FPA)**

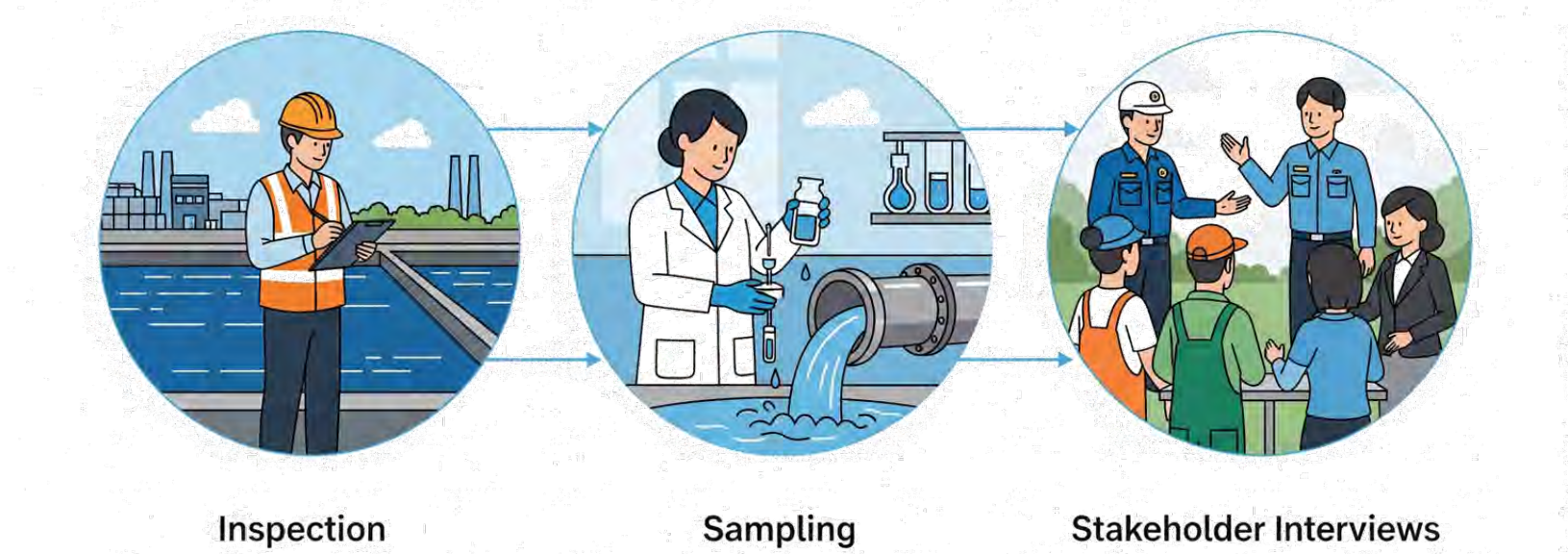
Discharge Permit from the **(DENR-EMB)**

Industry Category	DENR-EMB Parameters
PSIC Code: 20111/20114 Manufacture of ethanol	BOD, Ammonia, Chloride, Nitrate, pH, TSS, Sulfate, Temperature

Type of Reuse	DA-FPA Parameters
Fertilization	**Macronutrients:** N, P, K, S, Ca, Mg **Micronutrients:** Fe, Mn, B, Mo, Cu, Zn, Cl, Co **pH:** 6.5 – 8.0

2.5 The Investigation (Actions Taken to Ensure Compliance)

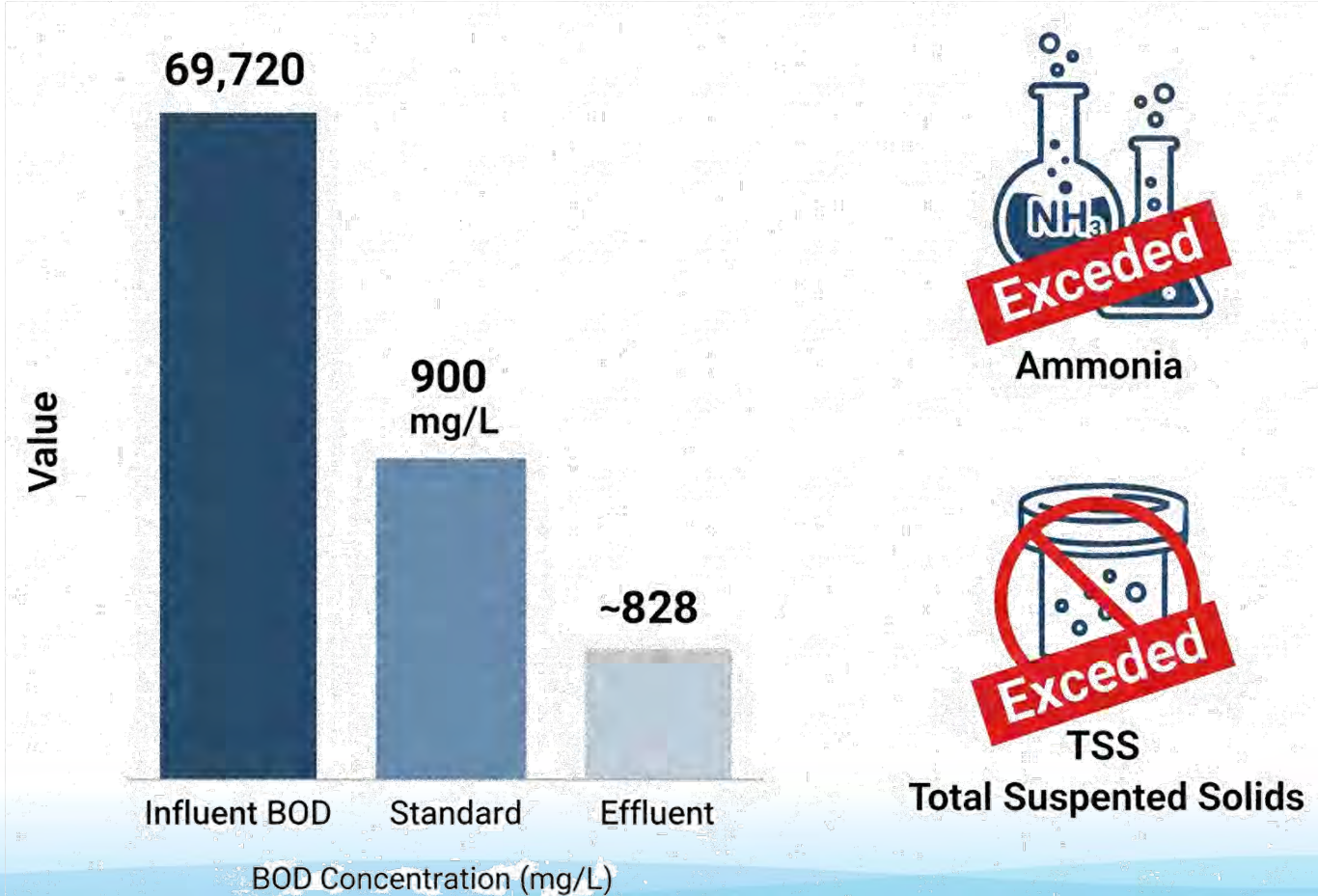
- **Inspection conducted by EMB** in response to complaints of illegal discharge
- Activities:
  - Site inspection of lagoons and drainage
  - Sampling at influent, digester overflow, effluent
  - Stakeholder interviews (LGU, barangay, farmers)



- **Aim:** Verify compliance with EMB effluent standards and adequacy of treatment before reuse

2.6 Findings

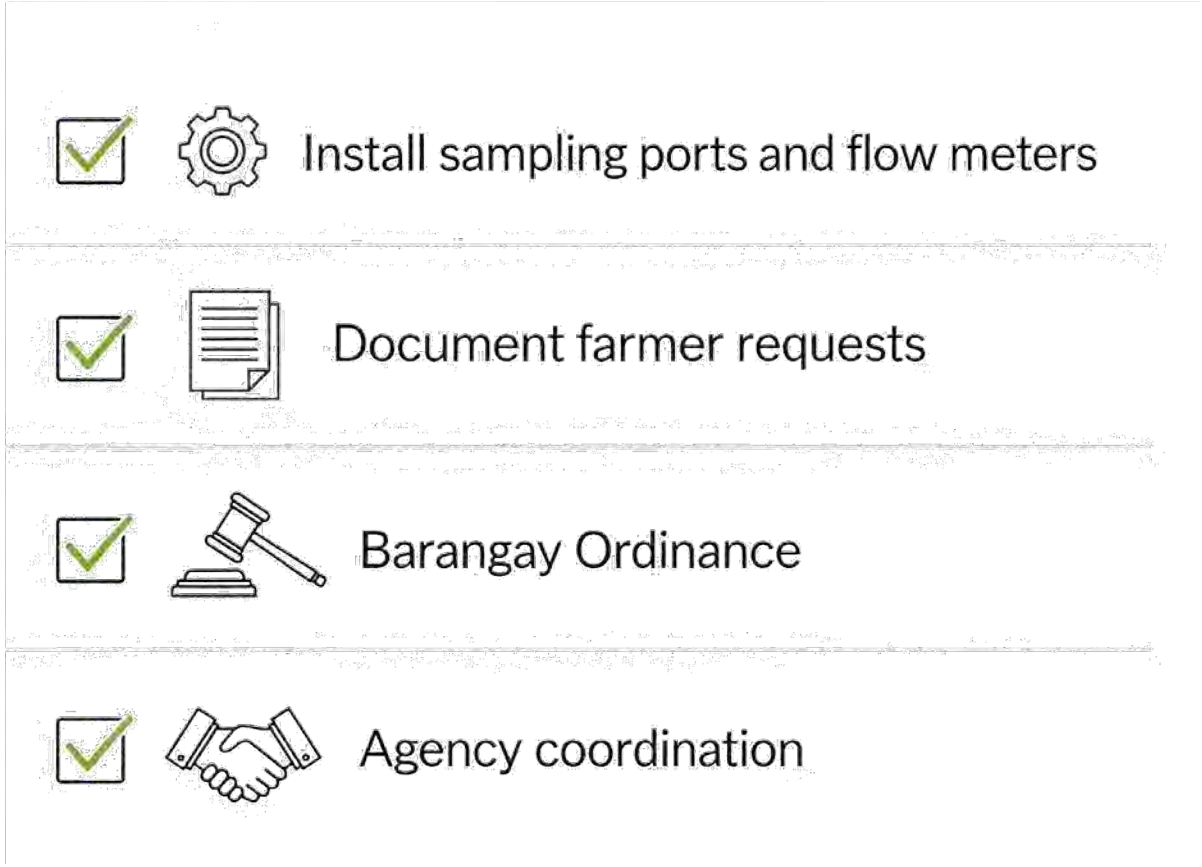
- **Influent BOD:** 69,720 mg/L → qualifies as “strong wastewater”
- **Effluent BOD:** <828 mg/L → passed adjusted strong ww limit (900 mg/L, DAO 2016-08)
- **Ammonia and TSS:** exceeded standards → treatment not fully adequate



- **Monitoring gaps:**
  - No safe sampling ports
  - No flow meters
- **Reuse gaps:** Weak documentation, no barangay ordinance formalizing “pagdidilig”

2.7 How the Case is Progressing

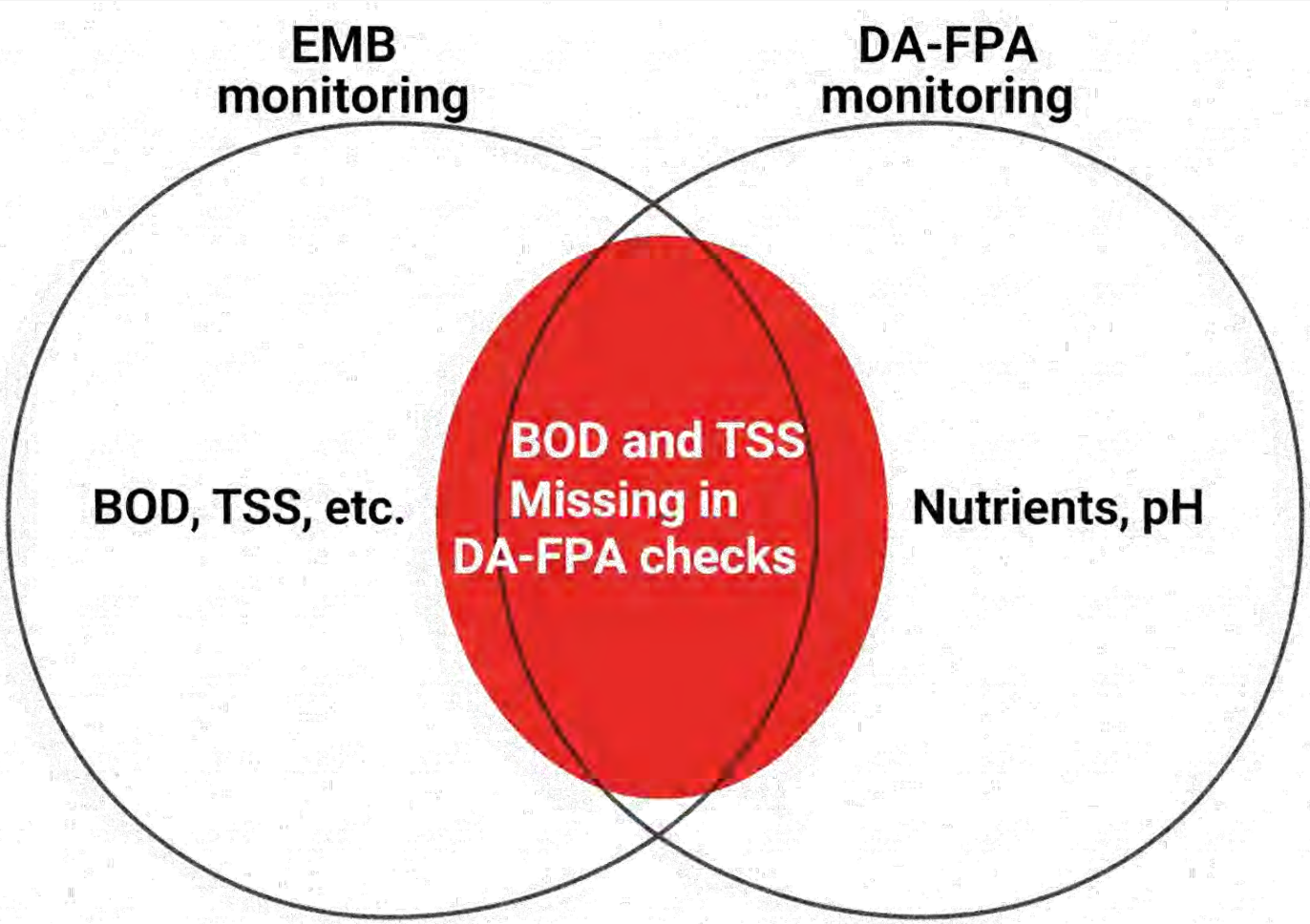
- EMB recommended **holding DP renewal** until:



- Highlight: **BOD and TSS should always be included in permits for wastewater reuse**

2.8 Other Relevant Information / Policy Gaps

- DA-FPA focuses on nutrients and soil pH, but **does not require BOD/TSS testing**
- EMB relies on DA-FPA certificate before issuing DP for reuse → but critical water quality parameters can be overlooked
- **Result:** Risk of inadequately treated wastewater being used as fertilizer



2.9 Recommendations / Lessons Learned

- **Include BOD and TSS monitoring** for all Discharge Permits involving agricultural reuse of wastewater
- **DENR, DA, DOH collaboration** needed to align monitoring and safeguard public health
- **Why regulate BOD/TSS even for reuse?**

- Environmental Protection → avoid oxygen depletion, turbidity in rivers
- Soil Health → avoid anaerobic conditions, blocked pores
- Crop & Food Safety → prevent pathogens/heavy metals entering food chain
- Sustainable Agriculture → ensure wastewater reuse is safe & responsible
- Groundwater Protection → avoid contamination of drinking water sources

2.10 Lessons for WEPA partners: