Administrative Order
No. 34
March 20, 1990

SUBJECT : Revised Water Usage and Classification/ Water Quality Criteria Amending Section Nos. 68 and 69, Chapter III of the 1978 NPCC Rules and Regulations

Section 68. Water Usage and Classification. - The quality of Philippine waters shall be maintained in a safe and satisfactory condition according to their best usages. For this purpose all waters shall be classified according to the following beneficial usages:

(a) Fresh Surface Waters (rivers, lakes, reservoirs, etc.)

Classification	**Beneficial Use 1/**
Class AA	**Public Water Supply Class I.** This class is intended primarily for waters having watersheds which are uninhabited and otherwise protected and which require only approved disinfection in order to meet the National Standards for Drinking Water (NSDW) of the Philippines.
Class A	**Public Water Supply Class II.** For sources of water supply that will require complete treatment (coagulation, sedimentation, filtration and disinfection) in order to meet the NSDW.
Class B	**Recreational Water Class I.** For primary contact recreation such as bathing, swimming, skin diving, etc. (particularly those designated for tourism purposes).

In general, this refers to current best beneficial use that is expected to last, at least, for the next 10 to 20 years. In special cases when dictated by political, economic, social, public health, environmental and other considerations, certain waters may be classified according to the intended or future beneficial use (e.g.Pasig River,Tullahan-Tenejeros, etc.)

Class C	1)	Fishery Water for the propagation and growth of fish and other aquatic resources;
	2)	Recreational Water Class II (Boating,etc.)
	3)	Industrial Water Supply Class I (For manufacturing processes after treatment).
Class D	1)	For agriculture, irrigation, livestock watering, etc.
	2)	Industrial Water Supply Class II (e.g. cooling, etc.);
	3)	Other inland waters, by their quality, belong to this classification.

(b) Coastal and Marine Waters

Classification		Beneficial Use
Class SA	1)	Waters suitable for the propagation, survival and harvesting of shellfish for commercial purposes;
	2)	Tourist zones and national marine parks and reserves established under Presidential Proclamation No. 1801; existing laws and/or declared as such by appropriate government agency.
	3)	Coral reef parks and reserves designated by law and concerned authorities.
Class SB	1)	Recreational Water Class I (Areas regularly used by the public for bathing, swimming, skin diving, etc.);
	2)	Fishery Water Class I (Spawning areas for Chanos chanos or "Bangus" and similar species).
Class SC	1)	Recreational Water Class II (e.g. boating, etc.);
	2)	Fishery Water Class II (Commercial and sustenance fishing);
	3)	Marshy and/or mangrove areas declared as fish and wildlife sanctuaries;
Class SD	1)	Industrial Water Supply Class II (e.g. cooling, etc.);
	2)	Other coastal and marine waters, by their quality, belong to this classification.

(c) General Provisions on Water Classification

1. Classification of a water body according to a particular designated use or uses does not preclude use of the water for other purposes that are lower in classification provided that such use does not prejudice the quality required for such waters.

2. Water classifications are arranged in the order of the degree of protection required, with Class AA and SA having generally the most stringent water quality, respectively, for fresh surface waters and marine/coastal waters; and Class D and SD waters have the least stringent water quality for fresh surface waters and marine waters, respectively.

3. The main objective of the water quality criteria is to maintain the minimum conditions necessary to assure the suitability of water for its designated use or classification.

4. Any person regulated under these rules or having a substantial interest in this chapter may seek reclassification of waters by filing a petition with the DENR giving all necessary information to support the petition.

5. All reclassifications of water shall be adopted, only after public notice and hearing and upon affirmative findings by the DENR Regional Office concerned that:

   i) The proposed reclassification will establish the present and future most beneficial use of the waters;
   ii) Such a reclassification is clearly in the public interest, and
   iii) The proposed designated use is attainable, upon consideration of environmental, technological, social, economic and institutional factors.

6. For purposes of classification or reclassification the following minimum water quality parameters are to beconsidered:

   i) Dissolved Oxygen (DO)
   ii) pH
   iii) Biochemical Oxygen Demand (BOD)
   iv) Total Coliform Organisms

Section 69. Water Quality Criteria.

(a) Minimum Criteria for Surface Waters. All surface waters of the country shall be free from:

1. Domestic, industrial, agricultural, or other man-induced non-thermal components of discharges which, alone or in combination with other substances or in combination with other components of discharges (whether thermal or non-thermal):

   i) That settle to form putrescent deposits or otherwise create a nuisance; or
   ii) That float as debris, scum, oil, or other matter in such amounts as to form nuisances; or
   iii) That produce color, odor, taste, turbidity, or other conditions in such degree as to create a nuisance; or
   iv) That are acutely toxic; or
   v) That are present in concentrations which are carcinogenic, mutagenic, or teratogenic to human beings or to significant, locally occurring, wildlife or aquatic species; or
   vi) That pose a serious danger to the public health, safety, or welfare.

2. Thermal components of discharges which alone, or in combination with other discharges or components of discharges (whether thermal or non-thermal):

   i) That produce conditions so as to create nuisance; or
   ii) That increase the temperature of the receiving body of water (RBW) so as to cause substantial damage or harm to the aquatic life or vegetation therein or interfere with the beneficial uses assigned to the RBW.

(b) Water Quality Criteria for Fresh Waters.

1. Conventional and Other Pollutants Affecting Aesthetics and Oxygen Demand. - Please refer to Table 1 for the parameters and limits or specifications according to classification and use of the receiving body of water (RBW).

TABLE 1 WATER QUALITY CRITERIA FOR CONVENTIONAL AND OTHER POLLUTANTS CONTRIBUTING TO AESTHETICS AND OXYGEN DEMAND FOR FRESH WATERS[a]

PARAMETER	UNIT	CLASS AA	CLASS A	CLASS B	CLASS C	CLASS D[b]
Color	PCU	15	50	(c)	(c)	(c)
Temperature[d] (max. rise in deg. Celsius)	^{o}C rise	--	3	3	3	3
pH (range)		6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.0-9.0
Dissolved Oxygen[e] (Minimum)	% satn	70	70	70	60	40
	mg/L	5.0	5.0	5.0	5.0	3.0
5-Day 20^{o}C BOD	mg/L	1	5	5	7(10)	10(15)
Total Suspended Solids	mg/L	25	50	(F)	(G)	(H)
Total Dissolved Solids	mg/L	500[i]	1,000[i]	--	--	1,000[i]
Surfactants (MBAS)	mg/L	nil	0.2(0.5)	0.3(0.5)	0.5	--
Oil/Grease (Petroleum Ether Extract)	mg/L	nil	1	1	2	5
Nitrate as Nitrogen	mg/L	1.0	10	NR	10[j]	--
Phosphate as Phosporus	mg/L	nil	0.1[k]	0.2[k]	0.4[k]	--
Phenolic Substances as Phenols	mg/L	nil	0.002	0.005[l]	0.02[l]	--
Total Coliforms	MPN/ 100mL	50[m]	1,000[m]	1,000[m]	5,000[m]	--

or Fecal Coliforms	MPN/ 100mL	20[(m)]	100[(m)]	200[(m)]	--	--
Chloride as Cl	mg/L	250	250	--	350	--
Copper	mg/L	1.0	1.0	--	0.05[(o)]	--

Footnotes for Tables 1, 2, 3 and 4.

(a) Except as otherwise indicated, the numerical limits in Tables 1 and 3 are yearly average values. Values enclosed in parentheses are maximum values.

(b) For irrigation purposes, SAR in effluent should be between 8 & 18 and Boron should not exceed 2.0 mg/l.

(c) No abnormal discoloration from unnatural causes

(d) The allowable temperature increase over the average ambient temperature for each month. This rise shall be based on the average of the maximum daily temperature readings recorded at the site but upstream of the mixing zone over a period of one (1) month.

(e) Sampling taken between 9:00 AM and 4:00 PM

(f Not more than 30% increase

(g) Not more than 30 mg/L increase

(h) Not more than 60 mg/L increase

(i) Do not apply if natural background is higher in concentration. The latter will prevail and will be used as baseline.

(j) Applicable only to lakes, reservoirs, and similarly impounded water.

(k) When applied to lakes or reservoirs, the Phosphate as P concentration should not exceed an average of 0.05 mg/L nor a maximum of 0.1 mg/L

(l) Not present in concentrations to affect fish flavor/taste

(m) These values refer to the geometric mean of the most probable number of coliform organism during a 3-month period and that the limit indicated shall not be exceeded in 20 percent of the samples taken during the same period.

(n) For spawning areas for Chanoschanos and other similar species

(o) Limit is in terms of dissolved copper

nil Extremely low concentration and not detectable by existing equipment

-- Means the standard of these substances are not considered necessary for the present time, considering the stage of the country's development and DENR capabilities, equipment and resources.

NR Means No Recommendation made

2. Toxic and Other Deleterious Substances. - The maximum limits for these types of pollutants according to classification or use of the receiving body of water are found in Table 2.

TABLE 2 _ WATER QUALITY CRITERIA FOR TOXIC AND OTHER DELETERIOUS SUBSTANCES FOR FRESH WATERS (For the Protection of Public Health)

PARAMETER	UNIT	CLASS AA	CLASS A	CLASS B	CLASS C	CLASS D
Arsenic(i)	mg/L	0.05	0.05	0.05	0.05	0.1
Cadmium(i)	mg/L	0.01	0.01	0.01	0.01	0.05
Chromium(i) (hexavalent)	mg/L	0.05	0.05	0.05	0.05	0.1
Cyanide	mg/L	0.05	0.05	0.05	0.05	--
Lead(i)	mg/L	0.05	0.05	0.05	0.05	0.5
Total Mercury(i)	mg/L	0.002	0.002	0.002	0.002	0.002
Organo-phosphate	mg/L	nil	nil	nil	nil	nil
Aldrin	mg/L	0.001	0.001	--	--	--
DDT	mg/L	0.05	0.05	--	--	--
Dieldrin	mg/L	0.001	0.001	--	--	--
Heptachlor	mg/L	nil	nil	--	--	--
Lindane	mg/L	0.004	0.004	--	--	--
Toxaphane	mg/L	0.005	0.005	--	--	--
Methoxychlor	mg/L	0.10	0.10	--	--	--
Chlordane	mg/L	0.003	0.003	--	--	--
Endrin	mg/L	nil	nil	--	--	--
PCB	mg/L	0.001	0.001	--	--	--

Note: 1. Limiting values of organophosphates and organochlorines may in the meantime serve as guidelines in the interim period pending the procurement and availability of necessary laboratory equipment. For **Barium, Cobalt, Fluoride, Iron, Lithium, Manganese, Nickel, Selenium, Silver and Vanadium,** the 1978 NPCC Rules and Regulations, Section 69 may be considered.

2. For footnotes please refer to Table 1.

(c) Coastal and Marine Waters Criteria.

1. Conventional and Other Pollutants Affecting Aesthetics and Oxygen Demand. The criteria for Class SA, SB, SC and SD are found in Table 3.

TABLE 3 _ WATER QUALITY CRITERIA FOR CONVENTIONAL AND OTHER POLLUTANTS AFFECTING AESTHETICS AND EXERTING OXYGEN DEMAND FOR COASTAL AND MARINE WATERS[a]

PARAMETER	UNIT	CLASS SA	CLASS SB	CLASS SC	CLASS SD
Color	PCU	(c)	(c)	(c)	(c)
Temperature[d] (max. rise in deg. Celsius)	^{o}C rise	3	3	3	3
H (range)		6.5-8.5	6.0-8.5	6.0-8.5	6.0-9.0
Dissolved Oxygen[e] (Minimum)	% satn	70	70	70	50
	mg/L	5.0	5.0	5.0	2.0
5-Day 20^{o}C BOD	mg/L	3	5	7(10)	--
Total Suspended Solids	mg/L	(f)	(g)	(g)	(h)
Surfactants (MBAS)	mg/L	0.2	0.3	0.5	--
Oil/Grease (Petroleum Ether Extract)	mg/L	1	2	3	5
Phenolic Substances as Phenols	mg/L	nil	0.01	(l)	--
Total Coliforms	MPN/ 100mL	70[m]	1,000[m]	1,000[m]	--
Fecal Coliforms	MPN/ 100mL	nil	200[m]	--	--
Copper	mg/L	--	0.02[n][o]	0.0[o]	--

NOTE: For footnotes please refer to Table 1.

2. Toxic and Other Deleterious Substances. The maximum limits for toxic and other deleterious substances for waters classified as Class SA, SB, SC and SD waters are found in Table 4.

TABLE 4 _ WATER QUALITY CRITERIA FOR TOXIC AND OTHER DELETERIOUS SUBSTANCES FOR COASTAL AND MARINE WATERS (For the Protection of Public Health)

PARAMETER	UNIT	CLASS SA	CLASS SB	CLASS SC	CLASS SD
Arsenic[(i)]	mg/L	0.05	0.05	0.05	--
Cadmium[(i)]	mg/L	0.01	0.01	0.01	--
Chromium[(i)] (hexavalent)	mg/L	0.05	0.1	0.1	--
Cyanide	mg/L	0.05	0.05	0.05	--
Lead[(i)]	mg/L	0.05	0.05	0.05	--
Total Mercury[(i)]	mg/L	0.002	0.002	0.002	--
Organo-phosphate	mg/L	nil	nil	nil	--
Aldrin	mg/L	0.001	--	--	--
DDT	mg/L	0.05	--	--	--
Dieldrin	mg/L	0.001	--	--	--
Heptachlor	mg/L	nil	--	--	--
Lindane	mg/L	0.004	--	--	--
Toxaphane	mg/L	0.005	--	--	--
Methoxychlor	mg/L	0.10	--	--	--
Chlordane	mg/L	0.003	--	--	--
Endrin	mg/L	nil	--	--	--
PCB	mg/L	0.001	--	--	--

Note: 1. Limiting values of organophosphates and organochlorines may in the meantime serve as guidelines in the interim period pending the procurement and availability of necessary laboratory equipment. For **Barium, Cobalt, Fluoride, Iron, Lithium, Manganese, Nickel, Selenium, Silver and Vanadium**, the 1978 NPCC Rules and Regulations,Section 69 may be considered.

2. For footnotes please refer to Table 1.

(d) **Methods of Analysis. - For purposes of these regulations, any water sample taken for the purpose of classification or for determining compliance with the water quality criteria shall be analyzed in accordance with the methods enumerated in Table 5. The table also applies to determine compliance to effluent regulations.**

TABLE 5 _ APPROVED METHODS OF ANALYSIS

PARAMETER	METHOD OF ANALYSIS
ARSENIC	Silver Diethyldithiocarbamate Method (Colorimetric)
BOD5	Azide Modification (Dilution Technique)
BORON	Carmine Method (Colorimetric Method)
CADMIUM	Atomic Absorption Spectrophotometry (Wet ashing with concentration HNO3 + HCl)
CHLORINATED HYDROCARBONS	Gas Chromatography (ECD)
CHROMIUM (Hexavalent)	Diphenyl Carbazide Colorimetric Method
COLOR	Visual Comparison Method (Platinum Cobalt Scale)
CYANIDE	Specific Ion Electrode Method
DISSOLVED OXYGEN	Azide Modification (Winkler Method), Membrane Electrode (DO meter)
FECAL COLIFORMS	Multiple-Tube Fermentation Technique or Membrane Filter
LEAD	Atomic Absorption Spectrophotometry
NITRATE AS NITROGEN	Bruccine Method for Saline Waters, specific Ion Electrode Meter for Fresh Water
OIL AND GREASE	Gravimetric Method (Petroleum Ether Extraction)

ORGANO PHOSPORUS COMPOUNDS	Gas Chromatography (FPD)
POLYCHLORINATED BYPHENYL(PCB)	Gas Chromatography (ECD)
pH	Glass Electrode Method
PHENOLIC SUBSTANCES	Chloroform Extraction Method
PHOSPHATE AS PHOSPORUS	Stannous Chloride Method
SETTLEABLE SOLIDS	Imhoff Cone Method
SURFACTANTS (MBAS)	Methylene Blue Method (Colorimetric)
TEMPERATURE	Use of Mercury-Filled Thermometer
TOTAL COLIFORMS	Multiple-Tube Fermentation Technique or Membrane Filter
TOTAL MERCURY	Cold Vapor Technique, (Mercury Analyzer, AAS)
TOTAL SUSPENDED SOLIDS	Gravimetric Method

NOTE: Other methods found in the Philippine Standard Methods for Air and Water Analysis, the "Standard Methods for the Examination of Water and Waste Waters", published jointly by American Public Health Association (APHA), the American Waterworks Association and the Water Pollution Control Federation of the U.S. or in accordance with such other method of analyses as the DENR may prescribe.

(e) Significant Parameters. - As a guide to dischargers and regulatory agencies the significant parameters to be considered for monitoring purposes are indicated in Table 6A and 6B.

TABLE 6A _ SIGNIFICANT PARAMETERS FOR SELECTED TYPES OF INDUSTRIES

	TYPE OF INDUSTRY	SIGNIFICANT WASTEWATER PARAMETERS
A.	BEVERAGE INDUSTRY	BOD5, pH, Suspended Solids, Settleable Solids, Oil and Grease
B.	CEMENT, CONCRETE LIME & GYPSUM	ph, Suspended Solids, Dissolved Solids, Temperature
C.	DAIRY PRODUCT PROCESSING	BOD5, COD, pH, Suspended Solids, Dissolved Solids, Settleable Solids
D.	FERROALLOY MFG. (electric furnace with wet pollution control)	Suspended Solids, Chromium (hexavalent), Oil and Grease, Phenols, Phosphates
E.	FERTILIZER INDUSTRY	
	Nitrogen Fertilizer Industry	Chloride, Chromium, Dissolved Solids, Nitrate, Suspended Solids
	Phosphate Fertilizer Industry	pH, Phosphorus, Suspended Solids, Temperature, Cadmium, Arsenic
F.	GRAIN MILLING INDUSTRY	BOD5, Suspended Solids, Temperature
G.	INORGANIC CHEMICALS ALKALIES & CHLORINE INDUSTRY	pH, Total Suspended Solids, Solids, Chlorides, Sulfates, COD, Temperature
H.	LEATHER TANNING & FINISHING INDUSTRY	BOD5, COD, Chromium, Oil and Grease, pH, Suspended Solids, Color, Dissolved Solids
I.	LIVESTOCK INDUSTRY	BOD5, COD, Total Suspended Solids, pH, Color, Total Coliforms

J.	MEAT, FISH AND FRUIT CANNING	BOD5, COD, Suspended Solids, pH, Oil & Grease, Dissolved Solids
K.	MEAT PRODUCTS INDUSTRY	BOD5, pH, Suspended Solids, Settleable Solids, Oil and Grease, Total Coliforms,Toxic Materials
L.	METAL FINISHING INDUSTRY	Oil and Grease, Heavy Metals (Cr, Cd, etc.), Suspended Solids, Cyanide
M.	MINERAL ORE PROCESSING	Suspended Solids, Heavy Metals (Mining Industry) (Hg, CN, Cd, etc.), Arsenic
N.	ORGANIC CHEMICALS INDUSTRY	BOD5, COD, pH, Total Suspended Soil, Oil (Free-Floating)
O.	PETROLEUM REFINING INDUSTRY	BOD5, Heavy Metals, COD, Oil, (Total), pH, Phenols, Suspended Solids, Temperature, Total Dissolved Solids
P.	PLASTIC MATERIALS & SYNTHETIC INDUSTRY	BOD5, COD, pH, Total Suspended Solids, Oil & Grease, Phenols
Q.	PULP & PAPER INDUSTRY	BOD5, COD, pH, Total Susp. Solids, E. Coli, Color, Heavy Metals,Dissolved Solids, Oil & Grease, Phenols
R.	STEEL INDUSTRY	Oil and Grease, pH, Cyanide, Phenol, Susp. Solids, Temperature, Chromium
S.	SUGAR CANE PROCESSING INDUSTRY	BOD5, pH, Suspended Solids, Oil and Grease
T.	TEXTILE MILL INDUSTRY	BOD5, COD, pH, Suspended Solids, Chromium, Phenols, Color, Oil and Grease
U.	THERMAL POWER GENERATION	BOD5, Color, Chromium, Oil and Grease, pH, Phosphate Suspended Solids, Temperature

This Order shall take effect thirty (30) days after publication in the Official Gazette or any newspaper of general circulation.

FULGENCIO S. FACTORAN, JR.
Secretary

Administrative Order
No. 35
March 20, 1990

SUBJECT: REVISED EFFLUENT REGULATIONS OF 1990, REVISING AND AMENDING THE EFFLUENT REGULATIONS OF 1982

Pursuant to the provisions of Section 6(i) of Presidential Decree No. 984, otherwise known as the "Pollution Control Decree of 1976", and by virtue of Executive Order No. 192, Series of 1987, the Department of Environment and Natural Resources hereby adopts and promulgates the following rules and regulations:

Section 1. Title. - These rules and regulations shall be known as the "Revised Effluent Regulations of 1990".

Section 2. Scope. -These rules and regulations shall apply to all industrial and municipal wastewater effluents.

Section 3. Definitions. - The following words and phrases, as used in these rules and regulations, shall have the following meanings unless the context clearly indicates otherwise:

a) **"BOD"** means a measure of the approximate quantity of dissolved oxygen that will be required by bacteria to stabilize organic matter in wastewater or surface water. It is a semi-quantitative measure of the wastewater organics that are oxidizable by bacteria. It is also a standard test in assessing wastewater strength.

b) **"Coastal Water"** means an open body of water along the country's coastline starting from the shoreline (MLLW) and extending outward up to the 200-meter isobath or three-kilometer distance, whichever is farther.

c) **"Department"** refers to the Department of Environment and Natural Resources.

d) **"Effluent"** is a general term denoting any wastewater, partially or completely treated, or in its natural state, flowing out of a manufacturing plant, industrial plant or treatment plant.

e) "**Inland Water**" means an interior body of water or watercourse such as lakes, reservoirs, rivers, streams, creeks, etc., that has beneficial usage other than public water supply or primary contact recreation. Tidal affected rivers or streams are considered inland waters for purposes of these regulations.

f) "**Mixing Zone**" is the place where the effluent discharge from a point source mixes with a receiving body of water. The area or extent of the zone shall be determined by the discharger and approved by the Department on a case-to-case basis.

g) "**NPI**" means New/Proposed Industry or wastewater treatment plants to be constructed.

h) "**OEI**" means Old or Existing Industry.

i) "**Primary Contact Recreation**" means any form of recreation where there is intimate contact of the human body with the water, such as swimming, water skiing, or skin diving.

j) "**Protected Water**" means a watercourse or a body of water, or any segment thereof, that is classified as a source of public water supply, propagation and harvesting of shellfish for commercial purposes, or spawning areas for Chanoschanos and similar species, or primary contact recreation, or that which is designated by competent government authority or by legislation as tourist zone, national marine park and reserve, including coral reef park and reserve.

k) "**Strong Waste**" refers to wastewater whose initial BOD value before treatment is equal to or greater than 3,000 mg/L.

Section 4. Heavy Metals and Toxic Substances. Industrial and other effluents when discharged into bodies of water classified as Class A, B, C, D, SA, SB, SC and SD in accordance with Section 68, as amended,of the 1978 NPCC Rules and Regulations shall not contain toxic substances in levels greater than those indicated in Table 1.

TABLE 1 _ EFFLUENT STANDARDS: TOXIC AND OTHER DELETERIOUS SUBSTANCE
(Maximum Limits for the Protection of Public Health)

PARAMETER	UNIT	PROTECTED WATERS CATEGORY I (Class AA & SA)		PROTECTED WATERS CATEGORY II (Class A, B, & SB)		INLAND WATERS CLASS C		MARINE WATERS CLASS SC		MARINE WATERS CLASS SD	
		OEI	NPI	OEI	NPI	OEI	NPI	OEI	NPI	OEI	NPI
Arsenic	mg/L	(B)	(B)	0.2	0.1	0.5	0.2	1.0	0.5	1.0	0.5
Cadmium	mg/L	(B)	(B)	0.05	0.02	0.1	0.05	0.2	0.1	0.5	0.2
Chromium (hexavalent)	mg/L	(B)	(B)	0.1	0.05	0.2	0.1	0.5	0.2	1.0	0.5
Cyanide	mg/L	(B)	(B)	0.2	0.1	0.3	0.2	0.5	0.2	--	--
Lead	mg/L	(B)	(B)	0.2	0.1	0.5	0.3	1.0	0.5	--	--
Mercury	mg/L	(B)	(B)	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.01
PCB	mg/L	(B)	(B)	0.003	0.003	0.003	0.003	0.003	0.003	--	--
Formaldehyde	mg/L	(B)	(B)	2.0	1.0	0.2	1.0	2.0	1.0	--	--

NOTE:

(A) The Effluent Standards apply to industrial/ manufacturing plants and municipal sewage treatment plants discharging more than thirty (30) cu.m. per day. Except as otherwise indicated, all limiting values in Table 1 (Section 4) are maximum values that shall not be exceeded

(B) Discharge of sewage and/or trade effluents are prohibited or not allowed.

Section 5. Conventional and Other Pollutants Affecting Aesthetics and Oxygen Demand. Effluents from domestic sewage and industrial wastewater treatment plants not covered under Section 6 of these Regulations, when discharged into receiving waters classified as Class A, B, C, D, SA, SB, SC and SD in accordance with Section 68, as amended, of the 1978 NPCC Rules and Regulations shall not contain the following pollutants in concentrations greater than those indicated in Tables 2A and 2B.

TABLE 2A _ EFFLUENT STANDARDS: Conventional and Other Pollutants in Protected Waters Category I & II and in Inland Waters Class CA

PARAMETER	UNIT	PROTECTED WATERS CATEGORY I (CLASS AA & SA)		PROTECTED WATERS CATEGORY II (CLASS A,B, & SB)		INLAND WATERS CLASS C.	
		OEI	NPI	OEI	NPI	OEI	NPI
Color	PCU	(B)	(B)	150	100	200(C)	150(D)
Temperature oC rise (max. rise in deg.Celsius in RBW)		(B)	(B)	3	3	3	3
pH (range)		(B)	(B)	6.0-9.0	6.0-9.0	6.0-9.0	6.5-9.0
COD	mg/L	(B)	(B)	100	60	150	100
p 6 2							
Settleable Solids (1-hour)	mL/L	(B)	(B)	0.3	0.3	0.5	0.5
5-Day 20oC BOD	mg/L	(B)	(B)	50	30	80	50
Total Suspended Soils	mg/L	(B)	(B)	70	50	90	70
Total Dissolved Solids	mg/L	(B)	(B)	1,200	1,000	1,500	1,000
Surfactants	mg/L	(B)	(B)	5.0	2.0	7.0	5.0
Oil/Grease (Petroleum Ether Extract)	mg/L	(B)	(B)	5.0	5.0	10.0	5.0
Phenolic Substances as Phenols	mg/L	(B)	(B)	0.1	0.05	0.5(G)	0.1(G)
Total Coliforms	MPN/mL	(B)	(B)	5,000	3,000	15,000	10,000

TABLE 2B - EFFLUENT STANDARDS: Conventional and Other Pollutants in Inland Waters Class D,Coastal Waters Class SC and SD and Other Coastal Waters not yet Classified)

PARAMETER	UNIT	INLAND WATERS (CLASS D)		COASTAL WATERS (CLASS SC)		CLASS SD & OTHER COASTAL WATERS NOT CLASSIFIED	
		OEI	NPI	OEI	NPI	OEI	NPI
Color	PCU	—	—	(C)	(C)	(C)	(C)
Temperature (max. rise in deg. Celsiusin RBW)	oC rise	3	3	3	3	3	3
pH (range)		5.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	5.0-9.0	5.0-9.0
COD	mg/L	250	200	250	200	300	200
5-Day 20oC BOD	mg/L	150(D)	120	120(D)	100	150(D)	120
Total Suspended Solids	mg/L	200	150	200	150	(G)	(F)
Total Dissolved Solids	mg/L	2,000(H)	1,500(H)	---	---	---	---
Surfactants (MBAS)	mg/L	—	—	15	10	—	—
Oil/Grease (Petroleum Ether Extract)	mg/L	—	—	15	10	15	15
Phenolic Substances as Phenols	mg/L	—	—	1.0(I)	0.5(I)	5.0	1.0
Total Coliforms	MPN/ 100mL	(J)	(J)	—	—	—	—

NOTES for Table 2A and Table 2B:

1. In cases where the background level of Total Dissolved Solids (TDS) in freshwater rivers, lakes, reservoirs and similar bodies of water is higher than the Water Quality Criteria, the discharge should not increase the level of TDS in the receiving body of water by more than ten percent of the background level.

2. The COD limits in Table 2A and 2B generally apply to domestic wastewater treatment plant effluent. For industrial discharges, the effluent standards for COD should be on a case to case basis considering the COD - BOD ratio after treatment. In the interim period that this ratio is not yet established by each discharger, the BOD requirement shall be enforced.

3. There are no effluent standards for chloride except for industries using brine and discharging into inland waters, in which case the chloride content should not exceed 500 mg/L.

LEGEND for Tables 2A & 2B:

(A) Except as otherwise indicated, all limiting values in Tables 2A and 2B are 90th percentile values. This is applicable only when the discharger undertakes daily monitoring of its effluent quality, otherwise, the numerical values in the tables represent maximum values not to be exceeded once a year.

(B) Discharging of sewage and/or trade effluents is prohibited or not allowed

(C) Discharge shall not cause abnormal discoloration in the receiving waters outside of the mixing zone

(D) For wastewaters with initial BOD concentration over 1,000 mg/L but less than 3,000 mg/L, the limit may be exceeded up to a maximum of 200 mg/L or a treatment reduction of ninety (90) percent, whichever is more strict. Applicable to both old and new industries.

(E) The parameters Total Suspended Solids (TSS) should not increase the TSS of the receiving water by more than thirty (30) percent during the dry season.

(F) Not more than 30 mg/L increase (dry season)

(G) Not more than 60 mg/L increase (dry season)

(H) If effluent is the sole source of supply for irrigation, the maximum limits are 1,500 mg/L and 1,000 mg/L, respectively, for old industries and new industries.

(I) Not present in concentration to affect fish flavor or taste or tainting

(J) If effluent is used to irrigate vegetable and fruit crops which may be eaten raw, Fecal Coliforms should be less than 500 MPN/100 mL.

Section 6. Effluent Standards for BOD for Strong Industrial Wastes.

a) Interim Requirements for Old or Existing Industries. - For strong industrial wastewaters with high BOD and where the receiving body of water is Class C, D, SC and SD in accordance with Section 68, as amended, of the 1978 NPCC Rules and Regulations, the interim effluent requirements for old industries [which] will be applicable within the period indicated in Table 3A.

TABLE 3A _ INTERIM EFFLUENT STANDARDS FOR BOD APPLICABLE TO OLD OR EXISTING INDUSTRIES PRODUCING STRONG INDUSTRIAL WASTES, (1990 - 1994)

Industry Classification Based on BOD of Raw Wastewaters Produced	Maximum Allowable Limits in mg/L*, according to Time Period and Receiving Body of Water			
	Effectivity date-Dec.31, 1991		Jan.1, 1992-Dec.31, 1994	
	Inland Waters (Class C & D)	Coastal Waters (Cl. SC & SD)	Inland Waters (Class C & D)	Coastal Water (Cl. SC & SD)
1. Industries producing BOD within 3,000 to 10,000 mg/L	320 or 95% removal	650 or 90% removal	200 or 97% removal	320 or 95% removal
2. Industries producing BOD within 10,000 to 30,000 mg/L	1,000 or 95% removal	2,000 or 90% removal	600 or 97% removal	1,000 or 95% removal
3. Industries producing more than 30,000 mg/L	1,500 or 95% removal	3,000 or 90% removal	900 or 97% removal	1,500 or 95% removal

NOTE:*

1. Use either the numerical limit or percentage removal whichever is lower (or whichever is more strict).
2. Starting January 1, 1995, the applicable effluent requirements for old or existing are indicated in Table 3B.
3. For parameters other than BOD, Table 2A and Table 2B both under Section 5 shall apply.

b) Requirements for New Industries. - Upon the effectivity of these regulations, new/proposed industries, or those old/existing industries that are yet to construct their wastewater treatment facilities, which are producing or treating strong wastewaters shall comply with the requirements in Table 3B below. By January 1995, this Table shall be applicable to all industries producing strong wastes.

TABLE 3B _ Effluent Standards for New* Industries Producing Strong Wastes upon Effectivity of these Regulations, and for All Industries Producing Strong Wastes starting January 1, 1995.

Industry Classification Based on BOD of Raw Wastewater	Maximum Allowable Limits in mg/L Based on Receiving Body of Water	
	Inland Waters (Class C and D)	Coastal Waters (Class SC and SD)
1. Industries producing within 3,000 to 10,000 mg BOD/L	130 or 98% removal	200 or 97% removal
2. Industries producing within 10,000 to 30,000 mg BOD/L	200 or 99% removal	600 or 97% removal
3. Industries producing more than 30,000 mg BOD/L	300 or 99% removal	900 or 97% removal

Note: *Including old or existing industries producing strong waste whose wastewater treatment plants are still to be constructed.

1. Use either numerical limits or percentage removal whichever is lower (or whichever is more strict).

2. For parameters other than BOD, Tables 2A and 2B shall apply.

Section 7. Mixing Zone Requirements. The following general conditions shall govern the location and extent of the mixing zone:

a) No mixing zone or combination of mixing zones shall be allowed to significantly impair any of the designated uses of the receiving body of water.

b) A mixing zone shall not include an existing drinking water supply intake if such mixing zone would significantly impair the purposes for which the supply is utilized.

c) A mixing zone for rivers, streams, etc., shall not create a barrier to the free migration of fish and aquatic life.

d) A mixing zone shall not include a nursery area of indigenous aquatic life nor include any area designated by the Department of Environment and Natural Resources for shellfish harvesting, tourist zones and national marine parks and reserves, coral reef parks and reserves and declared as such by the appropriate government agency.

e) In general, the length of the mixing zone or plume in rivers or similar waterways shall be as short as possible and its width shall be preferably not more than one-half of the width of the waterway.

f) In discharging hot effluents from power plants, mineral ore milling and similar generators of large volume of liquid wastes the permissible size of the mixing zone shall be determined through modelling taking into consideration the size, hydraulic and hydrological data of the receiving body of water and the design and siting of the wastewater outfall.

g) For the protection of aquatic life resources, the mixing zone must not be used for, or be considered as, a substitute for wastewater treatment facility.

Section 8. Additional Requirements. -

a) In addition to fulfilling the above-stated requirements in Sections 4 to 6, no effluent shall cause the quality of the receiving body of water to fall below the prescribed quality in accordance with its classification or best usage.

b) Where the combined effect of a number of individual effluent discharges causes one or more water quality parameters to exceed the prescribed limits. the maximum permissible concentrations of such parameters shall be reduced proportionately so as to maintain the desired quality.

c) When discharging effluents into coastal waters, the location and design of the submarine outfall shall be based on prevailing oceanographic and wind conditions so that discharged materials shall not find their way back to the shore and that there shall be minimum deposition of sediments near and around the outfall.

d) Effluents discharged into protected inland and coastal waters Category II, such as Class A, B and SB, shall meet the requirements of Sections 4 and 5 above.

e) Starting January 1, 1995 old or existing industries shall comply with the standards set for new industries in these regulations.

f) For a period to be determined by the Department Secretary and provided that the resulting effect on receiving waters does not pose an immediate threat to life, public health, safety or welfare or to animal or plant life or property, any existing industry that produces strong wastes which cannot meet the limits for BOD in Tables 3A and 3B, maybe allowed to operate and be issued a temporary permit to operate on condition that it pays first a penalty fee for polluting a receiving body of water in the amount equivalent to five pesos (P5.00) per kilogram of BOD discharged per day in exceedance of the allowable effluent limit provided further that the calculated fine shall not exceed P5,000 per day in accordance with PD 984 and its implementing rules and regulations. (Conversion Factor: 1 mg/L = 1 g/cu.m.)

g) Each discharger covered under these regulations shall monitor its effluent and its effect on the receiving body of water regularly in order to ensure compliance with Sections 4, 5 and 6 hereof and Section 69, as amended, of the 1978 NPCC Rules and Regulations.

Section 9. Prohibitions. -

a) No industrial or domestic sewage effluent shall be discharged into Class AA and SA waters.

b) In order to avoid deterioration of the quality of the receiving body of water, no new industrial plant with high waste load potential shall discharge into a body of water where the dilution or assimilative capacity of said water body during dry weather condition is insufficient to maintain its prescribed water quality according to its usage or classification.

c) No person shall discharge, wholly or partially, untreated or inadequately treated industrial effluents directly into bodies of water or through the use of by-pass canals and/or pumps and other unauthorized means except upon prior approval of the Department Secretary.

d) Other Restrictions:

1. All water pollution control facilities/installations shall be properly and consistently maintained and correctly and continuously operated in order to maintain an effluent quality that complies with Sections 4 to 6 of these regulations.

2. No industrial or manufacturing plant shall be operated without the control facilities or wastewater treatment system in good order or in proper operation except with the permission of the Department Secretary when special circumstances arise.

3. No industrial or manufacturing plant or source of pollution shall be operated at capacities beyond the limits of operation or capability of the wastewater treatment facility in order to maintain the effluent quality within the standards or pertinent conditions required by law and/or stipulated in the permit to operate .

4. No person shall build, erect, install or use any equipment, contrievance or any means the use of which will conceal and/or dilute an effluent discharge and which otherwise constitute a violation of any provisions of these regulations or the 1978 NPCC Rules and Regulations, as amended.

Section 10. Methods of Analysis for Effluents. - For purposes of these Regulations, any domestic or industrial effluent discharged into any body of water or watercourse shall be analyzed in accordance with the latest edition of the "Philippine Standard Methods for Air and Water Analyses", the "Standard Method for the Examination of Water and Wastewater" published jointly by the American Public Health Association, the American Waterworks Association and the Water Pollution Control Federation of the United States, or in accordance with such other methods of analysis as the Department may prescribe. The approved methods of analysis are given in Table 4.

TABLE 4 _ APPROVED METHODS OF ANALYSIS

PARAMETER	METHOD OF ANALYSIS
ARSENIC	Silver Diethyldithiocarbamate Method (Colorimetric)
BOD	Azide Modification (Dilution Technique)
BORON	Carmine Method (Colorimetric Method)
CADMIUM	Atomic Absorption Spectrophotometry (Wet ashing with concentration HNO3 + HCl)
CHLORINATED HYDROCARBONS	Gas Chromatography (ECD)
CHROMIUM (Hexavalent)	Diphenyl Carbazide Colorimetric Method
COLOR	Visual Comparison Method (Planting Cobalt Scale)
CYANIDE	Specific Ion Electrode Method
DISSOLVED OXYGEN	Azide Modification (Winkler Method), Membrane Electrode (DO meter)

FECAL COLIFORMS	Multiple-Tube Fermentation Technique or Membrane Filter
LEAD	Atomic Absorption Spectrophotometry
NITRATE AS NITROGEN	Bruccine Method for Saline Waters, specific Ion Electrode Meter for Fresh Water
OIL AND GREASE	Gravimetric Method (Petroleum Ether Extraction)
ORGANO PHOSPORUS COMPOUNDS	Gas Chromatography (FPD)
PCB	Gas Chromatography (ECD)
pH	Glass Electrode Method
PHENOLIC SUBSTANCES	Chloroform Extraction Method
PHOSPHATE AS PHOSPORUS	Stannous Chloride Method
SETTLEABLE SOLIDS	Imhoff Cone Method
SURFACTANT (MBAS)	Methylene Blue Method (Colorimetric)
TEMPERATURE	Use of Mercury-Filled Thermometer
TOTAL COLIFORMS	Multiple-Tube Fermentation Technique or Membrane Filter
TOTAL MERCURY	Cold Vapor Technique, (Mercury Analyzer, AAS)
TOTAL SUSPENDED SOLIDS	Gravimetric Method

NOTE: Other methods found in the Philippine Standard Methods for Air and Water Analysis, the "Standard Methods for the Examination of Water and Waste Waters", published jointly by American Public Health Association, the American Waterworks Association and the Water Pollution Control Federation of the U.S. or in accordance with such other method of analyses as the DENR may prescribe.

Section 11. Maximum Quantity to be Discharged. - For the protection of public health and the aquatic resources of the country and in cases where the volume, strength and nature of one or more pollutants, enumerated in, or not otherwise covered in the preceding Sections, are expected to cause a serious deterioration of a receiving body of water or cause harm or injury to aquatic life and resources, the Department Secretary shall promulgate guidelines for the use of the concerned line agencies, providing for the maximum quantity of any pollutant or contaminant that maybe allowed to be discharged into the said body of water or watercourse, including the maximum rate at which the contaminant may be so discharged.

This Section particularly applies, but is not limited to industrial effluents covered under Section 6 of these regulations, specifying in kilograms per day the BOD that may be discharged considering the classification and dry weather flow of the receiving body of water.

Section 12. Penalties. - Any person or group of persons found violating or failing to comply with any Order or Decision of the Department and/or the Pollution Adjudication Board or any provision of these Regulations, shall be liable under Section 9 of the Pollution Control Law (PD No. 984) and/or Section 106 of the 1978 NPCC Rules and Regulations, as amended.

Section 13. Separability Clause. - Any Section or provision of these regulations declared to be unconstitutional or invalid by a competent court, the other sections or provisions hereof shall remain to be in force.

Section 14. Repealing Clause. - Any provision of the 1978 Rules and Regulations, as amended, the Effluent Regulations of 1982, and other existing rules and regulations of the Department which are inconsistent herewith are hereby repealed.

Section 15. Amendments. - This Regulations may be amended and/or modified from time to time by the Department.

Section 16. Effectivity. - This Regulations shall take effect thirty (30) days after publication in the official gazette or any newspaper of general circulation.

FULGENCIO S. FACTORAN, JR.
Secretary