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APPROVED: JUAN A. ALBORS
Secretary of State

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Assistant Secretary of State

Commonwealth of Puerto Rico
Office of the Governor
Environmental Quality Board

AMENDMENTS TO THE WATER QUALITY STANDARDS REGULATIONS

August 1976

2139

COMMONWEALTH OF PUERTO RICO / OFFICE OF THE GOVERNOR

Environmental Quality Board

C E R T I F I C A T I O N

I DO HEREBY CERTIFY: That the enclosed copy of the amendments to the Water Quality Standards Regulation is a true and correct copy of the original approved by the Environmental Quality Board of Puerto Rico.

In San Juan, Puerto Rico, this 2 day of September 1976.

VICTOR R. UMPIERRE
Secretary

OFFICE OF THE BOARD: 1550 PONCE DE LEON AVENUE, 4th FLOOR / MAILING ADDRESS: P.O. BOX 11785, SANTURCE, PUERTO RICO 00910 / TELEPHONE: 725-5140

Amendments to Certain Sections of the Water Quality Standards Regulation

August 1976

I The following definitions of Article I are amended to read as follows:

Bioassay - - Analytical tests for evaluating the toxicity of an effluent, specific substances or combinations of these, in representative aquatic organisms, according to the standard procedures established in the "Biological Field and Laboratory Methods for Measuring the Quality of Surface Water and Effluents, EPA July 1973, Pub. No. 670/4-73-001" or by any other method approved by EQB, and expressed in TLm 96-hours. The representative organism to be used must be approved by the Board prior to the examination.

Environmental Protection Agency (EPA) - The Environmental Protection Agency of the United States established pursuant to the Reorganization Plan Number 3 of 1970.

Initial Mixing Zone (IMZ) - That space in a receiving water body immediately adjacent to an effluent discharge and defined by the discharge plume, where no degree of steady state is achievable and unavoidable mixing takes place, primarily because of the turbulence created by the discharge exit velocity and the density differences between the effluent and the receiving water. Where a single source

is responsible for multiple discharges of effluents with similar characteristics, a single Initial Mixing Zone will be applicable. The development and determination of said Initial Mixing Zone shall be reviewed by the Board subject to the applicable provisions of Article 5 of the Regulation.

Final Mixing Zone (FMZ) - That space in the receiving water body located beyond the IMZ and defined by a discharge plume, where mixing takes place primarily because of the difference in concentrations between the effluent and the receiving water, intermolecular reactions and temperature gradient. The development and determination of said FMZ shall be reviewed and approved by the Board subject to the applicable provisions of Article 5 of this Regulation.

Non-persistent Pesticides - Those pesticides whose initial concentration is reduced to half its value in a period of less than 96 hours due to hydrolisis and/or bacterial action.

II The following sections of the aforementioned Regulation are hereby amended to read as follows:

2.1.3 (A) Specific standards for some substances:

The maximum allowable concentration of certain substances in the receiving coastal and/or surface waters shall be the following:

SUBSTANCE	COASTAL WATERS Limit (mg/l)	SURFACE WATERS Limit (mg/l)
Arsenic (As)	0.15	0.050
Barium (Ba)	1.0	1.0
Boron (B)	4.8	1.0
Cadmium (Cd)	0.005	0.005
Carbon (Chloroform extract)	28.0	0.15
Chlorides (Cl)	---	250.0
Chromium (Cr) (hexavalent)	0.05	0.05
Chromium (Cr) (trivalent)	0.30	0.05
Copper (Cu)	0.05	0.04
Cyanide (CN)	0.01	0.20
Detergents (Methylene blue) active substances)	0.5	0.100
Fluorides (F)	1.3	---
Iron (Fe)	0.200	---
Lead (Pb)	0.015	---
Manganese (Mn)	0.100	---
Mercury (Hg)	0.001	0.001
Nitrogen (NO_3, NO_2, NH_3)	5.0	---
Nitrate plus Nitrite (as N)	---	10.0
Phenols	0.010	0.001
Selenium (Se)	0.01	0.01
Silver (Ag)	0.001	0.001
Sulfate (SO_4)	2800.	250.
Uranil (UO_2)	0.500	0.500
Zinc (Zn)	0.050	0.050

2.1.3 (B) Specific standards for pesticides

1. Organochlorides:

Organochloride pesticide residues in surface and coastal waters shall not exceed 1/100 of the TLm 96 hours of approved species. In no case shall these pesticides exceed the concentration (micrograms per liter or ppb listed:

SUBSTANCE	CONCENTRATION
Aldrin-Dieldrin	0.002
Chlordane	0.004
DDT	0.001
Endosulfan	0.001
Endrin	0.001
Heptachlor	0.001
Lindane	0.004
Methoxychlor	0.020
Mirex	0.001
Toxaphene	0.005
Perthane	0.070

2. Organophosphorus and non-persistent pesticides:

Organophosphorus and non-persistent pesticide residues in surface and coastal waters shall not exceed 1/10 of the TLm 96-hours approved species. In no case shall the following pesticides exceed the concentration (micrograms per liter or ppb) listed:

SUBSTANCE	CONCENTRATION
Demeton	0.100
Guthion	0.010
Malathion	0.100
Parathion	0.004
Coumaphos	0.010
Dursban	0.040
Fenthion	0.400
Naled	0.400
2,4-D	80.000
2,4,5-TP (Silvex)	10.000

2.1.3 (C) Standards for combinations of toxic materials: When two or more toxic materials are or may be present at the same time in a body of water, the allowable concentrations of each material shall be determined by means of biossay or any other applicable method approved by the Board.

2.1.3 (C)(1) When the allowable concentration for combination of toxic materials is determined by bioassay and the presence of toxic substances is caused by only one discharge, the applicable water quality standard in the boundary of the Initial

Mixing Zone for any of the toxic substances will be 1/z of the concentration of that substance multiplied by the dilution factor resulting from bioassay with the said discharge, i.e.:

Cc = 1/z x Cd x (TLm 96 hours or more)

where:

Cc = applicable water quality standard in the body of water for any of the toxic substances present in the discharge.

Cd = concentration of the toxic substance in the discharge.

z = will equal 10 for non-persistent toxicants, and will equal 100 for persistent toxicants or substances which tend to accumulate in the biological food chain.

2.1.3 (C) (2)

When the presence of toxic substances is caused by more than one discharge, and to these discharges cannot be assigned a signle Initial Mixing Zone nor separate Initial Mixing Zones without overlapping, the allowable concentration for any toxic substance in that body of water shall be determined by the Board on a case-by-case basis, in accordance with the intent expressed in this Sub-Section 2.1.3(C) and upon request of the persons responsible for the discharges.

2.2.4 (B) (7) Chlorides

The monthly arithmetic average shall not exceed 250 mg/l.

2.2.4 (B) (9) Nutrients

Nutrients are to be regulated in order to control eutrophication in the lakes and reservoirs of the Commonwealth of P. R., Therefore, the value of 25 ppb of Phosphorus as Total P is established as the criterium to achieve that stated purpose. Notwithstanding, the Board recognizes that the absence of adequate control technology may interfere with the attainment of said objective. In this case, the Board shall determine the minimum degree of treatment necessary to satisfy the intent of this sub-section in a case-by-case basis.

The Board also acknowledges that the expressed criterium may be too restrictive in certain situations. Therefore, exception may be granted if demonstrated to the satisfaction of the Board that nutrients limitation is not required in a given situation.

ARTICLE 5 MIXING ZONES

5.1 General Provisions

No person shall cause or permit a discharge for which an IMZ or an FMZ, or both has not been defined and authorized by the Board. For defining and authorizing any mixing zone, the Board shall take into consideration the following general conditions:

A. These zones shall be provided solely for mixing. Mixing must be accomplished as quickly as possible through the use of means which insure that the waste is mixed with the dilution water in the smallest possible space.

B. Suspended solids shall not settle to form observable deposits in the mixing zone as a result of the discharge.

C. (Reserved)

D. Nuisance growths of organisms shall not result in the mixing zone as a result of the discharge.

E. Maximum vertical dispersion of wastewater discharge stream shall be provided for in the mixing zone.

F. The mixing zone shall be located so as to allow, at all times, passageways for the movement or drift of the biota. In closed bodies of water, estuaries or rivers, any mixing zones shall be located close to the bank itself, in such manner that the

passageway continues lengthwise for a considerable distance which permits the adequate and safe flow of free floating or drifting organisms. The passageway shall contain at least 75 percent of the cross-sectional area and/or volume of flow in the case of estuaries.

G. A mixing zone shall not overlap with an adjacent mixing zone. Notwithstanding, overlapping may be allowed when demonstrated to the satisfaction of the Board that no adverse synergistic effect will result from the interaction of the overlapping mixing zones.

H. A mixing zone shall be allowed only if the applicant demonstrates to the satisfaction of the Board that the best control technology economically feasible is being used or proposed.

5.2 Standards for Granting Initial Mixing Zone (IMZ).

5.2.1 No Initial Mixing Zone (IMZ) shall be defined and authorized unless the applicant proposes an IMZ that meets all of the following requirements:

A. The largest dimension of the geometric figure that describes the IMZ shall not exceed four hundred feet (400 ft.).

B. The IMZ is mainly caused by the turbulence due to the momentum of the discharge and to the density gradient.

C. Satisfies the provisions of Section 5.1 of this Regulation.

D. At the boundary of the IMZ the water shall comply with all the water quality standards set forth for the corresponding classification, except as provided in Subsection 5.2.2.

5.2.2 Notwithstanding requirement (D) of Subsection 5.2.1 the Board may define and authorize an IMZ only for those pollutants which comply with the water quality standards at the boundary of the proposed zone. In this case, the remaining pollutants not in compliance with water quality standards at the boundary of the proposed IMZ shall be subject to the provisions of Section 5.3.

5.2.3 In the proposal, the applicant shall take into consideration such aspects as the physico-chemical characteristics of the discharge and of the receiving body of water, and use the best currently available simulation or determination technique to describe the proposed IMZ.

5.2.4 Within sixty days (60 days) of the submittal of an approvable application, the Board shall define and authorize an IMZ.

5.3 Final Mixing Zones (FMZ)

5.3.1 Condition Prececent

A. When deemed absolutely necessary, the Board may allow a final mixing zone (FMZ) with respect to a

a discharge. The Board shall consider a proposed FMZ only if the applicant demonstrates to the satisfaction of the Board that requirement (D) of Subsection 5.2.1 cannot be met.

B. The Board shall notify the applicant of its determination with respect to the need of a FMZ.

C. Upon receiving an affirmative decision by the Board, the applicant may proceed to submit a proposed FMZ.

5.3.2 Standard for Granting Final Mixing Zone

A. The Board shall define and authorize a FMZ only if the following conditions are met:

1. The proposed FMZ complies with the provisions of Section 5.1.

2. The largest dimension of the geometric figure that describes the proposed FMZ does not exceed four-thousand feet (4,000 ft.).

3. The most advanced mathematical modeling method approved by the Board for the dispersion of effluents in a body of water was used in developing the proposed FMZ.

4. That the proposed FMZ is not located in spawning grounds, shellfish growing areas, or any other areas which the Board may deem as inappropriate for the establishment of a FMZ.

5. In developing the proposed FMZ, the size, nature and classification of the receiving body of water shall be taken into consideration.

6. The proposed FMZ shall explicitly describe and define any IMZ's if any, included therein.

7.6 Amendment to Applicable Rules and Regulations

7.6.1 Effective Date of Amendments

The Board may adopt amendments to this Regulation. Such amendments shall be in effect thirty (30) days after the date of its filing at the Department of State, or immediately through the issuance of an executive order in conformity with the provisions of Law 112 of June 30, 1957, as amended.

7.6.2 Required Hearing on Amendments

The Board shall not adopt any amendment without holding a public hearing and complying with the notice requirements, established in Subsection 7.6.3.

7.6.3 Notice of required Hearings

A. Notice of the date, time, place, and nature of the required hearing that the Board shall hold to amend this Regulation, must be given at least 30 days before the hearing by publishing the required Notice at least once in two of the newspapers of largest circulation on the Island.

The Board may give additional notice in any manner it deems appropriate.

B. Such notice of hearings shall indicate at least one location where the full text of the proposed amendment will be available for public inspection.

7.6.4 Mandatory periodic hearings on the Regulation

The Board shall periodically hold public hearings to consider possible amendments to this Regulation. The first of such hearings shall be held not later than 3 years after the latest adopted amendments.

7.6.5 Effect of pending amendment

A. Notwithstanding any other provision of this regulation while any amendment to this Regulation is pending, any water quality certificate, approval, permit, or authorization under consideration by the Board, shall be based either on the present Regulation or on the pending amendment, whichever is more stringent.

B. For purposes of this Section, an amendment is "pending" from the date of first publication of the notice of public hearing on the amendment.