



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES

N.J.A.C. 7:9-4 ET SEQ.

FILE DEP WATER quality

SURFACE WATER QUALITY STANDARDS

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David J. Bardin, Commissioner

Effective December 2, 1974

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STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ADOPTION OF RULE REVISION
DIVISION OF WATER RESOURCES

- a. The provisions of Section 303 of the Federal Water Pollution Control Act Amendments of 1972 mandate that State water pollution control agencies adopt water quality standards applicable to intrastate waters and that such standards be submitted to the U.S. Environmental Protection Agency (EPA) for approval.
- b. As Commissioner of the Department of Environmental Protection, in accordance with N.J.S.A. 13:1D-1 et seq., I have promulgated new rules of the Division of Water Resources (N.J.A.C. 7:9-4 et seq.). These rules replace N.J.A.C. 7:9-4 through 7:9-7.37, except that 7:9-7.29 through 7:9-7.34 are now N.J.A.C. 7:9-8.38 through 7:9-8.43. The new rules have an effective date of December 2, 1974 and establish surface water quality standards consistent with the purpose and intent of the federal Act and federal guidelines and regulations.
- c. These standards may also be utilized to assist in determining the influence of man's activities beyond those involving direct waste discharges from communities or industries. These indirect sources of water pollution include land development, dredging, landfills, agricultural operations and water impoundments. These standards do not necessarily describe existing conditions of New Jersey's waterways. They do represent objectives of cleanliness to be achieved through the administrative and enforcement mechanisms available to the Department.

d. Legal notice of the proposed regulations and the public hearing concerning them, as required by law, was given July 5, 1973. A public hearing was held on August 1, 1973 at which time 15 interested persons, organizations and groups testified. In addition, 22 written statements were received following the hearing.

e. A series of conferences were then held with representatives of New Jersey, New York, Pennsylvania, Delaware, Delaware River Basin Commission, Interstate Sanitation Commission and Regions II and III of the U. S. Environmental Protection Agency to discuss consistency of standards for waterways comprising common interstate boundaries.

f. In response to the public testimony and as a consequence of interagency agreement, 55 out of 234 subsections were altered. Most of the revisions consisted of rewording to clarify the intent of the regulations. There were, however, certain substantive changes which were made in 14 subsections for total dissolved solids, phosphorus, heat dissipation areas in the main stem of the Delaware River and the inclusion of shellfish harvesting in ocean waters.

g. I then provided an opportunity for the general public to review the newly proposed standards by publishing a proposal to adopt new rules establishing surface water quality standards in the August 8, 1974 New Jersey Register. About 700 copies of this notice, together with the newly proposed standards were mailed to interested persons, organizations, groups, etc. for comment.

h. As a consequence of this notification, 11 statements were received.* These statements consisted of comments, observations, discussions and recommendations ranging from editing corrections to substantive changes. Of those recommendations for changes contained in the statements received, the following were considered significant.

More Restrictive:

1. Reduce phosphorus limitations.

Comment: The 50 ug/l limitation proposed in the standards conforms to EPA guidelines which have been established on the basis of nation-wide scientific studies which identified the influence of phosphorus upon aquatic growth.

2. Provide detailed numerical limitations of toxic and deleterious substances.

Comment: There is a lack of consensus at this time in the scientific community concerning the establishment of numerical limitations for all toxic or deleterious substances and combinations thereof. The bioassay requirements proposed in the standards provide a means of determining the influence of such substances upon aquatic life. An examination as to the influence of toxic or deleterious substances would, in general, be made on a case by case basis using the best available information at hand.

*Statements received from the following:

1. American Cyanamid Company, C.P. Priesing, Ph.D., Manager, Environmental Protection Department.
2. Atlantic City Electric Company, Fred E. Morgenweck, Manager of Environmental Protection.
3. Bayonne Citizens for Clean Water Committee, Barbara A. Campell, Co-Chairman.
4. Sussex County Department of Planning, Conservation-Economic Development, Andrew C. Paszkowski, Director
5. FMC Corporation, Paul F. Derr, Ph.D., Technical Manager, Industrial Chemical Division.
6. Havens and Emerson Limited, Vincent A. Ladavaia.
7. New Jersey Builders Association, Jirair S. Hovnanian, President.
8. New Jersey Public Interest Research Group, Richard Willinger, Director
9. Public Service Electric and Gas Company, James A. Shissias, General Manager, Environmental Affairs.
10. Reheis Chemical Company, Rudolph Ferentchak, Director of Operations.
11. Upper Raritan Watershed Association, Peter W. Larson, Executive Director.

3. Upgrade water use designations to provide for fish propagation in TW-3 waters.

Comment: As explained on page viii, EPA has granted an exemption from the use designation of such waters for fish propagation purposes.

4. Define limitations for non-thermal zones of passage.

Comment: Non-thermal mixing areas and zones of passage will be defined on a case-by-case basis predicated upon protection of the aquatic environment.

Less Restrictive:

1. Change the statistical basis for establishing low flows in streams.

Comment: The change suggested would cause water quality standards to be contravened more than 50% of the time. Therefore, no change was made.

2. Reduce the required level of wastewater treatment.

Comment: The minimum level of treatment required by EPA for any wastewater must be such that discharges shall meet effluent limits as established under Section 402 of the Federal Water Pollution Control Act Amendments of 1972.

3. Eliminate phosphorus as a quality criterion.

Comment: Limitations are necessary in recognition of the influence of phosphorus as one of the nutrients which contribute to undesirable aquatic growths.

4. Reduce temperature levels.

Comment: Maximum permitted temperature levels were included in the Department's 1971 standards and are consistent with guidelines established by EPA after extensive studies relating to the effects of heat on the protection and support of fish life.

5. Change designated fresh water use for the Ho-Ho-Kus Brook from potable (FW-2) to non-potable (FW-3).

Comment: Although the Ho-Ho-Kus Brook, a tributary to the Saddle River, is not directly used as a potable water supply source, it does, during low flow periods, affect the quality of the Saddle River above the confluence of the two streams at a point where water is diverted from the Saddle River for potable purposes.

6. Change the total dissolved solids criteria to relate directly to the protection of potable water supplies.

Comment: As a result of this recommendation and discussions with EPA, the following three subsections involving total dissolved solids have been reworded to provide for greater flexibility in their application while still providing for the protection of all established water uses and public health, safety and welfare.

CLASS FW-2 WATERS

Total Dissolved Solids

From - Not to exceed 133% of background or 500 mg/l, whichever is less. Notwithstanding this criterion, the Department may, after notice and opportunity for hearing, authorize increases of more than 1/3 of background, but not more than 500 mg/l where the discharger responsible for the increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or other designated uses.

Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

To - Not to exceed 500 mg/l or 133% of background. Notwithstanding this criterion, the Department, after notice and opportunity for hearing, may authorize increases exceeding these limits provided the discharger responsible for such increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or other designated uses, including public potable water supplies.

Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

CLASS TW-1 WATERS

Total Dissolved Solids

From - Not to exceed 133% of background. Not to exceed 500 mg/l for waters approved as sources of public water supply. Notwithstanding this criterion, the Department may, after notice and opportunity for hearing, authorize increases of more than 1/3 of background, but not more than 500 mg/l for waters approved as sources of public water supply, where the discharger responsible for the increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or to other designated uses.

Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

- To - Not to exceed 500 mg/l for waters approved as sources of public water supply. Not to exceed 133% of background. Notwithstanding this criterion, the Department, after notice and opportunity for hearing, may authorize increases exceeding these limits provided the discharger responsible for such increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or other designated uses, including public potable water supplies.

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Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

i. These standards, which will be reviewed within three years, represent current knowledge of surface water quality levels needed in order that our waterways may, in fact, be utilized for their highest assigned purposes. Considerable use was made of the National Technical Advisory Committee Report to the Secretary of the Interior on Water Quality Criteria, April 1, 1968. Sufficient water quality data will be gathered and studies made to permit a continuing evaluation of these standards to be incorporated in the review process.

j. The water quality standards consist of the following:

Scope of Rules

Construction

Practice where rules do not govern

A statement of policy on the protection and enhancement of waters of the State

Definitions

Definition of surface water classes.

Water quality criteria consisting of numerical values and narrative descriptions for each surface water class.

Use designations and water quality criteria for the main stem of the Delaware River


Classification of all other surface waters of the State.

k. EPA has recognized that some waters, because of natural occurring poor quality, man-made pollution or technological limitations, might not be totally restorable within the near future so as to provide for the protection and propagation of fish, shellfish, and wildlife or for recreation.

1. On July 26, 1973, the Department requested EPA to exempt certain tidal waters classified as TW-3 located in the New York-New Jersey metropolitan area excluding, as a designated use, the propagation of fish. A similar exemption request was made to EPA for the metropolitan area portion of the Delaware River Estuary. The exemptions sought, and allowed by EPA on August 8, 1973, involved the establishment of minimum allowable dissolved oxygen levels ranging from 3.0 to 3.5 mg/l which is below the 4.0 mg/l established by EPA - thus excluding, as a designated use, the propagation of fish populations. However, these waters, which constitute less than 2% of the State's total water resources, must still be made clean enough for recreation, the maintenance of fish populations, the migration of anadromous fish, the maintenance of wildlife and other reasonable uses. The exemptions granted by EPA are temporary and are subject to review within three years as required by Section 303(c) of the Federal Water Pollution Control Act Amendments of 1972. The exemptions were based upon extensive scientific studies which found that it would not be technologically feasible to achieve the dissolved oxygen objective of 4.0 mg/l.

m. The water quality standards will be used as the basis for establishing equitable load allocations for approved wastewater discharges. In addition, the standards are intended to serve as the bases for the development of water quality management plans for point and non-point sources throughout the State.

n. It is the intent of this Department through the implementation of its water quality standards to carry out a long-standing commitment for cleaner waters for the people of this State while at the same time meeting the intent and spirit of the Federal water pollution law and EPA policy.


David J. Bardin
Commissioner

Approved on 30 Oct 1974

Filed with Secretary of State: November 18, 1974

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Appendix A
 Surface Water Classifications Map



SUBCHAPTER 4 SURFACE WATER QUALITY STANDARDS

7:9-4.1 SCOPE OF RULES

Unless otherwise provided by rule or statute, the rules of the Division of Water Resources shall govern matters of policy with respect to the protection and enhancement of surface water resources, class definitions and quality criteria, use designation and quality criteria for the main stem of the Delaware River including the Delaware Bay, and the classification of surface waters of the State.

7:9-4.2 CONSTRUCTION

- (a) These rules shall be liberally construed to permit the Department, the Division of Water Resources and its various agencies to discharge its statutory functions.
- (b) Commissioner or the Director of the Division of Water Resources may, upon notice to all parties, in the public interest, relax the application of these rules.

7:9-4.3 PRACTICE WHERE RULES DO NOT GOVERN

- (a) The Commissioner may rescind, amend or expand these rules from time to time, and such new rules shall be filed with the Secretary of State as provided by law.
- (b) The Commissioner, the Director of the Division of Water Resources or any agency Chief shall exercise his discretion in respect to any other matters not governed by these rules.

7:9-4.4 STATEMENT OF POLICY

(a) The following are statements of policy:

1. Water is vital to life and comprises an invaluable natural resource which is not to be abused by any segment of the State's population or its economy.
2. Chapter 12 of Title 58 of the Revised Statutes of New Jersey (N.J.S.A.) 58:12-3 provides that no plant for the treatment of domestic or industrial wastes or other polluting substance from which the effluent is to flow into any of the waters of this State, shall be constructed except under such conditions as shall be established by the State Department of Environmental Protection.
3. The protection and enhancement of the quality and function of the waters of this State into which effluents from sewerage facilities are discharged is a principal objective of the State Department of Environmental Protection when considering the approval of designs for proposed sewerage facilities.
4. The minimum level of treatment required for any wastewater must be such that discharges shall meet effluent limits as established under Section 402 of the Federal Water Pollution Control Act Amendments of 1972 and shall not cause the surface water quality criteria contained herein to be contravened.
5. For the tidal tributaries (to head of tide) to the Delaware River, including the Delaware Bay, classification as to uses to be protected and water quality criteria for such waters shall be as established herein or in accordance with the current Basin Regulations - Water Quality adopted by the Delaware River Basin Commission as part of its Comprehensive Plan, whichever are more stringent.
6. The protection and enhancement of the State's waterways shall take precedence over such allowable minimal water quality levels as may be established.
7. Where existing water quality is better than the established criteria, the Department of Environmental Protection in the administration of these regulations shall maintain the quality of such waters unless it can be demonstrated that change is justifiable as a result of necessary economic or social development.
8. In all situations where there may be an impingement of a lesser quality water upon that of a higher quality of water, the lesser quality of water shall be upgraded in order to protect or improve adjacent higher quality waters.

9. Waters which are designated to be retained in their natural state, and therefore not subject to any man-made wastewater discharges, shall be protected.
10. The water quality criteria are not intended to be applicable in instances where water quality does not conform to specified values solely as a result of natural causes.
11. No industry or community shall have the privilege of utilizing the entire theoretical capacity of surface waters to receive waste discharges.
12. The levels of quality specified for various water uses, where applicable, are expected to be maintained under conditions comprising minimum consecutive seven day fresh water flows with ten year recurrence intervals.
13. Effective year-round disinfection shall be required for all treated wastewater discharges containing pathogenic organisms.
14. Existing approved shellfish harvesting areas shall be protected. Tidal waters that now are at levels of quality below acceptable limits for shellfish harvesting shall be restored.
15. The total area and/or volume of a body of water assigned to non-thermal mixing areas shall be limited to that which will not interfere with biological communities or populations of important species to a degree which is damaging to the ecosystem; and not diminish other beneficial uses disproportionately. Water quality criteria are intended to apply outside of designated non-thermal mixing areas.
16. In river systems, reservoirs, lakes, estuaries and coastal waters, zones of passage are considered to be continuous water routes of the volume, area and quality necessary to allow passage of free-swimming and drifting organisms with no significant effects produced on their populations. These zones of passage must be provided wherever non-thermal mixing areas are allowed.
17. All laboratories whose analytical data are to be incorporated by the Department in its water quality monitoring or other activities shall routinely utilize and document inter and intra-laboratory analytical quality control procedures in a manner mutually agreed upon by the Department and the Regional Administrator, U. S. Environmental Protection Agency.
18. The following numerical values shall be used as guidelines in administering appropriate sections of the water quality criteria and are applicable to all surface waters of the State:

- i. The concentration of a toxic substance in surface waters shall not exceed one-twentieth of the TL₅₀ value at 96 hours, as determined by appropriate bioassays in accordance with the current edition of "Standard Methods for Examination of Water and Wastewater",¹ except in designated mixing areas. Criteria for combinations of toxic substances will be based on the same principle.
- ii. In no case shall substances listed below exceed the specified limits.

| | <u>mg/l</u> |
|---------------------------|-------------|
| (1) Arsenic | 0.05 |
| (2) Barium | 1.0 |
| (3) Cadmium | 0.01 |
| (4) Chromium (hexavalent) | 0.05 |
| (5) Lead | 0.05 |
| (6) Mercury | 0.005 |
| (7) Selenium | 0.01 |
| (8) Silver | 0.05 |

- iii. The concentration of a persistent pesticide in surface waters shall not exceed one one-hundredth of the TL₅₀ value at 96 hours, as determined by appropriate bioassay. Persistent pesticides are defined as natural and synthetic materials having a half-life of greater than 96 hours, which are used to control unwanted or noxious animals or plants. They include fungicides, herbicides, insecticides, fumigants and rodenticides.

- 19. The Department shall establish from time to time a list of specific organisms to be used for conducting bioassays in the surface waters of New Jersey. Such organisms shall be representative of prevailing biota for the class of waters under consideration.

* * *

¹ Prepared and published by American Public Health Association, American Water Works Association, Water Pollution Control Federation.

7:9-4.5 DEFINITIONS

The following words and terms, when used in this subchapter, shall have the following meanings unless the context clearly indicates otherwise.

Agricultural Water Supply - Water used for livestock or irrigation.

Ambient Temperature - The temperature of a water body unaffected by the localized heated waste discharge or discharge complex.

Anadromous Fish - Fish that spend a part of their lives in the sea or lakes, but ascend rivers to spawn.

Aquatic Substrata - Soil material and attached biota underlying the water.

Biota - The animal and plant life of the region; flora and fauna collectively.

Department - New Jersey Department of Environmental Protection.

Epilimnion - The upper warm region of a stratified body of water which is freely circulating and extends from the surface to the thermocline and does not have a permanent temperature stratification.

Eutrophic Lake - Lakes with a good supply of nutrients; they may support rich organic production, such as algae blooms and are commonly deficient in dissolved oxygen below the thermocline when stratified.

Heat Dissipation Area - Localized area of surface water, as may be designated by the Department, into which thermal effluents may be discharged for the purpose of mixing, dispersing or dissipating such effluents without creating nuisances or hazardous conditions.

Hypolimnion - The lower cold region of a stratified body of water that extends from the thermocline to the bottom of the lake and is cut off from circulation with the upper waters, thereby receiving no oxygen from the atmosphere while stratified.

Industrial Water Supply - Water used for processing and cooling.

Mixing Areas - Localized areas of surface waters, as may be designated by the Department, into which non-thermal wastewater effluents may be discharged for the purpose of mixing, dispersing or dissipating such effluents without creating nuisances or hazardous conditions.

Natural Temperature - Temperature that would exist in a waterway without the addition of heat of artificial origin.

Nontrout Waters - Waters, that because of their physical and/or chemical and/or biotic characteristics, are not suitable for trout but which, in general, are suitable for a wide variety of other fish species.

Primary Contact Recreation - Recreational activities that involve significant ingestion risks and including but not limited to wading, swimming, diving, surfing, and water skiing.

Secondary Contact Recreation - Recreational activities where the probability of significant contact or water ingestion is minimal and including but not limited to boating, fishing, and those other activities involving limited contact with surface waters incident to shoreline recreation.

Stream Temperature - Temperature of a stream outside of the designated heat dissipation area.

Surface Water Classifications - Surface waters of this State identified as Fresh (FW), Tidal (TW) and Coastal (CW). This includes both interstate and intrastate waters.

Thermocline - The middle layer of a stratified body of water in which the drop in temperature equals or exceeds 1.8° F (1° C) per meter of depth.

Thermal Alterations - The increase or decrease in temperature of surface waters above or below the natural that may be caused by the activities of man.

Trout Maintenance Waters - Waters that support trout throughout the year or which have high potential for such use pending the correction of short term environmental alterations. Waters in which the biotic community is manipulated for the purpose of trout maintenance and which are otherwise not naturally suited for such purposes are not included.

Trout Production Waters - Waters that are used by trout for spawning and/or nursery purposes during their first summer; or which are considered to have high potential for such use pending the correction of short term environmental alterations.

Wildlife - All undomesticated animals and fowl.

7:9-4.6 SURFACE WATER CLASS DEFINITIONS AND QUALITY CRITERIA

(a) CLASS DEFINITION AND QUALITY CRITERIA
FW-1 WATERS

1. Class FW-1 Definition:

Fresh waters, including rivers, streams, lakes or other bodies of water which, because of their clarity, color, scenic setting, or other characteristic of aesthetic value or unique special interest, have been designated by authorized State agencies in conformance with laws pertaining to the use of private lands, to be set aside for posterity to represent the natural aquatic environment and its associated biota.

2. Class FW-1 Criteria:

These waters shall be maintained as to quality in their natural state and shall not be subject to any man-made wastewater discharges.

* * *

(b) CLASS DEFINITION AND QUALITY CRITERIA
FW-2 WATERS

1. Class FW-2 Definition:

- i. Fresh surface waters approved as sources of public water supply. These waters shall be suitable for public potable water supply after such treatment as shall be required by law or regulation.
- ii. These waters shall also be suitable for the maintenance, migration and propagation of the natural and established biota; and for primary contact recreation; industrial and agricultural water supply and any other reasonable uses.

2. Class FW-2 Criteria:

- i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity
 - (1) None noticeable in the water or deposited along the shore or on the aquatic substrate in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
 - (2) Maximum 30-day average of 20 Jackson Turbidity Units (JTU), a maximum of 110 JTU at any time, unless exceeded due to natural conditions.
- ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses. None which would cause standards for drinking water to be exceeded after appropriate treatment.
- iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.
- iv. pH

Between 6.5 and 8.5. Natural conditions outside this range shall prevail.

v. Dissolved Oxygen

- (1) Trout Production Waters - Not less than 7.0 mg/l at any time.
- (2) Trout Maintenance Streams - 24 hour average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.
- (3) Trout Maintenance Lakes - 24 hour average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.

In eutrophic lakes when stratification is present, not less than 4.0 mg/l in or above the thermocline where water temperatures are below 72° F (22.2° C). At depths where the water is 72° F (22.2° C) or above, 24 hour average not less than 6.0 mg/l and not less than 5.0 mg/l at any time.

- (4) Nontrout Waters - 24 hour average not less than 5.0 mg/l. Not less than 4.0 mg/l at any time.

vi. Temperature

- (1) Trout Production Waters - Natural temperatures shall prevail except where properly treated wastewater effluents may be discharged. Where such discharges occur, stream temperatures shall not be raised more than 1° F (0.6° C).
- (2) Trout Maintenance Streams - No heat may be added which would cause temperatures to exceed 2° F (1.1° C) over ambient at any time or which would cause temperatures in excess of 68° F (20° C). The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish.

Reductions in temperatures may be permitted where it can be shown that trout will benefit without detriment to other designated water uses. The rate of temperature change shall not cause mortality of fish.

- (3) Trout Maintenance Lakes - No thermal alterations except where it can be shown to benefit the designated uses.

(4) Nontrout Waters

- (A) General - No thermal alterations which would cause temperatures to deviate more than 5° F (2.8° C) at any time from ambient stream temperatures. No heat may be added which would cause temperatures to exceed 82° F (27.8° C) for small mouth bass or yellow perch waters or 86° F (30° C) for other nontrout waters.

Temperatures shall be measured outside of designated heat dissipation areas.

No thermal alterations of more than 3° F (1.7° C) in the epilimnion of lakes and other standing waters.

Unless a special study shows that a discharge of a heated effluent into the hypolimnion or pumping water from the hypolimnion (for discharging back into the same water body) will be desirable with respect to designated water uses, such practice shall not be permitted.

- (B) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis.

- (C) Heat Dissipation Area Determinations - The determination of heat dissipation areas shall take into special consideration the extent and nature of the receiving waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

As a guideline, heat dissipation areas shall be limited to no more than 1/4 of the cross-sectional area and/or volume of flow of the stream, leaving at least 3/4 free as a zone of passage including a minimum of 1/3 the surface measured from shore to shore at any flow.

- (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.

- (E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform levels shall not exceed a geometric average of 200/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 500 mg/l or 133% of background. Notwithstanding this criterion, the Department, after notice and opportunity for hearing, may authorize increases exceeding these limits provided the discharger responsible for such increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or other designated uses, including public potable water supplies.

Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

x. Phosphorus

Phosphorus as total P shall not exceed 50^μg/l in any reservoir, lake, pond or in a tributary at the point where it enters such bodies of water, unless it can be demonstrated that total P is not a limiting factor considering the morphological, physical, chemical and other characteristics of the water body.

* * *

(c) CLASS DEFINITION AND QUALITY CRITERIA
FW-3 WATERS

1. Class FW-3 Definition:

Fresh surface waters suitable for the maintenance, migration and propagation of the natural and established biota; and for primary contact recreation; industrial and agricultural water supply and any other reasonable uses.

2. Class FW-3 Criteria:

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

- (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
- (2) Maximum 30-day average of 20 Jackson Turbidity Units (JTU), a maximum of 110 JTU at any time, unless exceeded due to natural conditions.

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5. Natural conditions outside this range shall prevail.

v. Dissolved Oxygen

- (1) Trout Production Waters - Not less than 7.0 mg/l at any time.
- (2) Trout Maintenance Streams - 24 hour average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.
- (3) Trout Maintenance Lakes - 24 hour average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.

In eutrophic lakes when stratification is present, not less than 4.0 mg/l in or above the thermocline where water temperatures are below 72° F (22.2° C). At depths where the water is 72° F (22.2° C) or above, 24 hour average not less than 6.0 mg/l and not less than 5.0 mg/l at any time.

- (4) Nontrout Waters - 24 hour average not less than 5.0 mg/l. Not less than 4.0 mg/l at any time.

vi. Temperature

- (1) Trout Production Waters - Natural temperatures shall prevail except where properly treated wastewater effluents may be discharged. Where such discharges occur, stream temperatures shall not be raised more than 1° F (0.6° C).
- (2) Trout Maintenance Streams - No heat may be added which would cause temperatures to exceed 2° F (1.1° C) over ambient at any time or which would cause temperatures in excess of 68° F (20° C).

Reductions in temperatures may be permitted where it can be shown that trout will benefit without detriment to other designated water uses. The rate of temperature change shall not cause mortality of fish.

- (3) Trout Maintenance Lakes - No thermal alterations except where it can be shown to benefit the designated uses.

(4) Nontrout Waters

- (A) General - No thermal alterations which would cause temperatures to deviate more than 5° F (2.8° C) at any time from ambient stream temperatures. No heat may be added which would cause temperatures to exceed 82° F (27.8° C) for small mouth bass or yellow perch waters or 86° F (30° C) for other nontrout waters.

Temperatures shall be measured outside of designated heat dissipation areas.

No thermal alterations of more than 3° F (1.7° C) in the epilimnion of lakes and other standing waters.

Unless a special study shows that a discharge of a heated effluent into the hypolimnion or pumping water from the hypolimnion (for discharging back into the same water body) will be desirable with respect to designated water uses, such practice shall not be permitted.

- (B) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis.
- (C) Heat Dissipation Area Determinations - The determination of heat dissipation areas shall take into special consideration the extent and nature of the receiving waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

As a guideline, heat dissipation areas shall be limited to no more than 1/4 of the cross-sectional area and/or volume of flow of the stream, leaving at least 3/4 free as a zone of passage including a minimum of 1/3 the surface measured from shore to shore at any flow.

- (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.

(E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform levels shall not exceed a geometric average of 200/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 133% of background. Notwithstanding this criterion, the Department, after notice and opportunity for hearing, may authorize increases exceeding this limit provided the discharger responsible for such increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or other designated uses.

Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

x. Phosphorus

Phosphorus as total P shall not exceed 50^μg/l in any reservoir, lake, pond or in a tributary at the point where it enters such bodies of water, unless it can be demonstrated that total P is not a limiting factor considering the morphological, physical, chemical and other characteristics of the water body.

* * *

(d) CLASS DEFINITION AND QUALITY CRITERIA
TW-1 WATERS

1. Class TW-1 Definition:

- i. Tidal waters approved as sources of public water supply. These waters shall be suitable for public potable water supply after such treatment as shall be required by law or regulation.
- ii. These waters shall be suitable for shellfish harvesting where permitted.
- iii. These waters shall also be suitable for the maintenance, migration and propagation of the natural and established biota; and for primary contact recreation; industrial and agricultural water supply and any other reasonable uses.

2. Class TW-1 Criteria:

- i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity
 - (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
 - (2) Maximum 30-day average of 25 Jackson Turbidity Units (JTU), a maximum of 130 JTU at any time, unless exceeded due to natural conditions.
- ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses. Where tidal waters are approved as sources of public water supply, none which would cause standards for drinking water to be exceeded after appropriate treatment.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5. Natural conditions outside this range shall prevail.

v. Dissolved Oxygen

- (1) Trout Maintenance Waters - 24 hour average not less than 6.0 mg/l. Not less than 5.0 mg/l at any time.
- (2) Nontrout Waters - 24 hour average not less than 5.0 mg/l. Not less than 4.0 mg/l at any time from other than natural conditions.

vi. Temperature

- (1) Trout Maintenance Streams - No heat may be added which would cause temperatures to exceed 2° F (1.1° C) over ambient temperatures at any time or which would cause temperatures in excess of 68° F (20° C).

Reductions in temperatures may be permitted where it can be shown that trout will benefit without detriment to other designated water uses. The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

(2) Nontrout Waters

- (A) General - Shall not be raised above ambient by more than 4° F (2.2° C) during September through May, nor more than 1.5° F (0.8° C) during June through August, nor shall temperatures exceed 82° F (27.8° C) in yellow perch waters or 85° F (29.4° C) in other nontrout waters.

Temperatures shall be measured outside of designated heat dissipation areas.

- (B) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis.
- (C) Heat Dissipation Area Determinations - The determination of designated heat dissipation areas in estuarine waters, including bays, shall take into special consideration the extent and nature of such waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

As a guideline, heat dissipation areas shall be limited to no more than 1/4 of the cross-sectional area and/or volume of flow of the body of water, leaving at least 3/4 free as a zone of passage including a minimum of 1/3 the surface measured from shore to shore at any stage of tide.

- (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
- (E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

- (1) Approved Shellfish Harvesting Waters - Where harvesting of shellfish is permitted, requirements established by the National Shellfish Sanitation Program as set forth in its current manual of operations shall apply.
- (2) All Other Waters - Fecal coliform levels shall not exceed a geometric average of 200/100 ml.

Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 500 mg/l for waters approved as sources of public water supply. Not to exceed 133% of background. Notwithstanding this criterion, the Department, after notice and opportunity for hearing, may authorize increases exceeding these limits provided the discharger responsible for such increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or other designated uses, including public potable water supplies.

Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

* * *

(e) CLASS DEFINITION AND QUALITY CRITERIA
TW-2 WATERS

1. Class TW-2 Definition:

- i. Tidal waters approved as sources of public water supply. These waters shall be suitable for public potable water supply after such treatment as shall be required by law or regulation.
- ii. These waters shall also be suitable for secondary contact recreation; the propagation and maintenance of fish populations; the migration of anadromous fish; the maintenance of wildlife and other reasonable uses.

2. Class TW-2 Criteria

- i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity
 - (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
 - (2) Maximum 30-day average of 25 Jackson Turbidity Units (JTU), a maximum of 130 JTU at any time, unless exceeded due to natural conditions.
- ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses. Where tidal waters are approved as sources of public water supply, none which would cause standards for drinking water to be exceeded after appropriate treatment.
- iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5. Natural conditions outside this range shall prevail.

v. Dissolved Oxygen

Not less than 4.0 mg/l at any time from other than natural conditions.

vi. Temperature

(1) Nontrout Waters

- (A) General - Shall not be raised above ambient by more than 4° F (2.2° C) during September through May, nor more than 1.5° F (0.8° C) during June through August, nor shall temperatures exceed 82° F (27.8° C) in yellow perch waters or 85° F (29.4° C) in other nontrout waters.

Temperatures shall be measured outside of designated heat dissipation areas.

- (B) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis.
- (C) Heat Dissipation Area Determinations - The determination of designated heat dissipation areas in estuarine waters, including bays, shall take into special consideration the extent and nature of such waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

As a guideline, heat dissipation areas shall be limited to no more than 1/4 of the cross-sectional area and/or volume of flow of the body of water, leaving at least 3/4 free as a zone of passage including a minimum of 1/3 the surface measured from shore to shore at any stage of tide.

- (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
- (E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform levels shall not exceed a geometric average of 770/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 500 mg/l for waters approved as sources of public water supply. Not to exceed 133% of background. Notwithstanding this criterion, the Department, after notice and opportunity for hearing, may authorize increases exceeding these limits provided the discharger responsible for such increases can demonstrate to the satisfaction of the Department that such increases will not significantly affect the growth and propagation of indigenous aquatic biota or other designated uses, including public potable water supplies.

Any authorization by the Department of such increases shall be conditioned upon utilization of the maximum practicable control technology.

* * *

(1) CLASS DEFINITION AND QUALITY CRITERIA
TW-3 WATERS

1. Class TW-3 Definition:

Tidal waters suitable for secondary contact recreation; the maintenance of fish populations; the migration of anadromous fish; the maintenance of wildlife and other reasonable uses.

2. Class TW-3 Criteria

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

- (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
- (2) Maximum 30-day average of 50 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, unless exceeded due to natural conditions.

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5. Natural conditions outside this range shall prevail.

v. Dissolved Oxygen

Not less than 3.0 mg/l at any time.

vi. Temperature(1) Nontrout Waters

- (A) General - Shall not be raised above ambient by more than 4° F (2.2° C) during September through May, nor more than 1.5° F (0.8° C) during June through August, nor shall temperatures exceed 82° F (27.8° C) in yellow perch waters or 85° F (29.4° C) in other nontrout waters.

Temperatures shall be measured outside of designated heat dissipation areas.

- (B) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis.
- (C) Heat Dissipation Area Determinations - The determination of designated heat dissipation areas in estuarine waters, including bays, shall take into special consideration the extent and nature of such waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

As a guideline, heat dissipation areas shall be limited to no more than 1/4 of the cross-sectional area and/or volume of flow of the body of water, leaving at least 3/4 free as a zone of passage including a minimum of 1/3 the surface measured from shore to shore at any stage of tide.

- (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
- (E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform levels shall not exceed a geometric average of 1500/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

* * *

(g) CLASS DEFINITION AND QUALITY CRITERIA
CW-1 WATERS

1. Class CW-1 Definition:

- i. The waters of the Atlantic Ocean within 1500 feet from mean low tide shoreline or to a bottom depth of 15 feet below the mean low tide elevation, whichever is more distant from the mean low tide shoreline.
- ii. These waters shall be suitable for shellfish harvesting where permitted.
- iii. These waters shall be suitable for primary contact recreation; the maintenance, migration and propagation of the natural and established biota and any other reasonable uses.

2. Class CW-1 Criteria:

- i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity
 - (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
 - (2) Turbidity shall not exceed 10 Jackson Turbidity Units (JTU).
- ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses.
- iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Natural pH conditions shall prevail.

v. Dissolved Oxygen

Not less than 5.0 mg/l from other than natural conditions.

vi. Temperature

- (1) General - No heat may be added directly to these waters. As a result of any heat which may be added elsewhere, the temperature shall not be raised above ambient by more than 4° F (2.2° C) during September through May, nor more than 1.5° F (0.8° C) during June through August, nor shall temperatures exceed 80° F (26.7° C).

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

- (1) Approved Shellfish Harvesting Waters - Where harvesting of shellfish is permitted, requirements established by the National Shellfish Sanitation Program as set forth in its current manual of operations shall apply.
- (2) All Other Waters - Fecal coliform levels shall not exceed a geometric average of 50/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

* * *

(h) CLASS DEFINITION AND QUALITY CRITERIA
CW-2 WATERS

1. Class CW-2 Definition:

- i. Atlantic Ocean waters beyond those established under CW-1 to the three mile limit.
- ii. These waters shall be suitable for shellfish harvesting where permitted.
- iii. These waters shall be suitable for secondary contact recreation; the maintenance, migration and propagation of the natural and established biota and any other reasonable uses.

2. Class CW-2 Criteria

- i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity
 - (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
 - (2) Turbidity shall not exceed 10 Jackson Turbidity Units (JTU).
- ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses.
- iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.
- iv. pH

Natural pH conditions shall prevail.

v. Dissolved Oxygen

Not less than 5.0 mg/l from other than natural conditions.

vi. Temperature

- (1) General - No heat may be added which would cause temperatures to be raised above ambient by more than 4° F (2.2° C) during September through May, nor more than 1.5° F (0.8° C) during June through August, nor shall temperatures exceed 80° F (26.7° C).

Temperatures shall be measured outside of designated heat dissipation areas.

- (2) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis.
- (3) Heat Dissipation Area Determinations - The determination of designated heat dissipation areas shall take into special consideration the extent and nature of such waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.
- (4) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
- (5) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

- (1) Approved Shellfish Harvesting Waters - Where harvesting of shellfish is permitted, requirements established by the National Shellfish Sanitation Program as set forth in its current manual of operations shall apply.

- (2) All Other Waters - Fecal coliform levels shall not exceed a geometric average of 200/100 ml. Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall also be carried out as a supplement to such sampling and laboratory analyses.

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7:9-4.7 DESIGNATED USES AND QUALITY CRITERIA
 MAIN STEM DELAWARE RIVER AND DELAWARE BAY

(a) DESIGNATED USES AND QUALITY CRITERIA - ZONE 1

1. Zone 1 Designated Uses:

For the non-tidal (fresh water) portion of the River down to the head of tide at Trenton (River Mile 133.4): Agricultural, industrial and public water supplies after reasonable treatment; wildlife, maintenance and propagation of resident gamefish and other aquatic life; spawning and nursery habitat for anadromous fish; passage of anadromous fish and primary contact recreation.

2. Zone 1 Criteria:

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

- (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
- (2) Maximum 30-day average of 20 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, unless exceeded due to natural conditions upstream from R.M. 183.66 (Phillipsburg, New Jersey).
- (3) Maximum 30-day average of 30 JTU, a maximum of 150 JTU at any time, unless exceeded due to natural conditions from R.M. 183.66 to R.M. 133.4 (head of tide at Trenton).

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses. None which would cause standards for drinking water to be exceeded after appropriate treatment.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.0 and 8.5.

v. Dissolved Oxygen

24 hour average shall not be less than 5.0 mg/l. Not less than 4.0 mg/l at any time.

vi. Temperature

(1) General - Shall not exceed 5° F (2.8° C) rise above ambient temperature until stream temperature reaches 87° F (30.6° C) except in designated heat dissipation areas. Natural temperature will prevail above 87° F (30.6° C), except in designated heat dissipation areas.

(2) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis, subject to the following conditions:

(A) Maximum Length - As a guideline, heat dissipation areas from R.M. 217.0 (Tocks Island) to R.M. 133.4 (Trenton) shall not be longer than 3,500 feet, or 20 times the average width of the stream, whichever is less, measured from the point where the waste discharge enters the stream.

As a guideline, heat dissipation areas upstream from R.M. 217.0 shall not be longer than 1,000 feet, or 20 times the average width of the stream, whichever is less, measured from the point where the waste discharge enters the stream.

(B) Maximum Width - Heat dissipation areas shall not exceed a maximum width of one-half the surface width of the stream or the width encompassing one-half of the entire cross-sectional area of the stream, whichever is less. Within any one heat dissipation area, only one shore shall be used in determining the limits of the area.

(C) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.

(D) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform not to exceed 200/100 ml as a geometric average. Samples shall be taken at such frequency and location as to permit valid interpretation. Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 133 percent of background as of October 1, 1972 or 500 mg/l, whichever is less.

x. Total Alkalinity

Not less than 20 mg/l below R.M. 183.66.

xi. Phenols

Not to exceed 0.005 mg/l, unless exceeded due to natural conditions.

xii. Synthetic Detergents (M.B.A.S.)

Not to exceed 0.5 mg/l.

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(b) DESIGNATED USES AND QUALITY CRITERIA - ZONE 2

1. Zone 2 Designated Uses:

For that portion of the Delaware River from head of tidewater at Trenton R.M. 133.4 (Trenton-Morrisville Toll Bridge) to R.M. 108.4 below the mouth of Pennypack Creek (Pennsylvania): Agricultural, industrial and public water supplies after reasonable treatment; wildlife, maintenance and propagation of resident fish and other aquatic life, passage of anadromous fish; recreation [primary contact recreation from R.M. 133.4 to R.M. 117.81 (Bristol-Burlington Bridge); secondary contact recreation below R.M. 117.81 to R.M. 108.4]; and navigation.

2. Zone 2 Criteria:

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

- (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
- (2) Maximum 30-day average of 40 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, except above R.M. 117.81 during the period May 30 to September 15 when the turbidity shall not exceed 30 JTU at any time; unless exceeded due to natural conditions.

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses. None which would cause standards for drinking water to be exceeded after appropriate treatment.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5.

v. Dissolved Oxygen

24 hour average concentration shall not be less than 5.0 mg/l. During the periods from April 1 to June 15 and September 16 to December 31 the seasonal average shall not be less than 6.5 mg/l.

vi. Temperature

- (1) General - Shall not exceed 5° F (2.8° C) above the average 24 hour temperature gradient displayed during the 1961-1966 period, or a maximum of 86° F (30.0° C) whichever is less. Temperatures shall be measured outside of designated heat dissipation areas.
- (2) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis, subject to the following conditions:
 - (A) Maximum Length - As a guideline, heat dissipation areas shall not be longer than 3,500 feet, measured from the point where the waste discharge enters the stream.
 - (B) Maximum Width - Heat dissipation areas shall not exceed a maximum width of two-thirds the surface width measured from shore to shore at any stage of tide. Within any one heat dissipation area only one shore shall be used in determining the limits of the area.
 - (C) Maximum Cross Section - Heat dissipation areas shall not exceed a maximum of one-fourth of the cross sectional area of the stream.
 - (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
 - (E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

(F) Heat Dissipation Area Determinations - The determination of heat dissipation areas shall take into special consideration the extent and nature of the receiving waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform not to exceed 200/100 ml as a geometric average above R.M. 117.81 and 770/100 ml below R.M. 117.81. Samples shall be taken at such frequency and location as to permit valid interpretation. Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 133 percent of background as of October 1, 1972 or 500 mg/l, whichever is less.

x. Total Alkalinity

Between 20 and 100 mg/l.

xi. Phenols

Not to exceed 0.005 mg/l, unless exceeded due to natural conditions.

xii. Synthetic Detergents (M.B.A.S.)

Maximum 30-day average 0.5 mg/l.

xiii. Chlorides

Maximum 15-day average 50 mg/l.

xiv. Hardness

Maximum 30-day average 95 mg/l.

* * *

(c) DESIGNATED USES AND QUALITY CRITERIA - ZONE 3

1. Zone 3 Designated Uses:

For that portion of the Delaware River from R.M. 108.4 below mouth of Pennypack Creek (Pennsylvania) to R.M. 95.0 below the mouth of Big Timber Creek (New Jersey): Agricultural, industrial and public water supplies after reasonable treatment; wildlife, maintenance of resident fish and other aquatic life, passage of anadromous fish; secondary contact recreation; and navigation.

2. Zone 3 Criteria:

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

- (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
- (2) Maximum 30-day average of 40 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, unless exceeded due to natural conditions.

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses. None which would cause standards for drinking water to be exceeded after appropriate treatment.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5.

v. Dissolved Oxygen

24 hour average concentration shall not be less than 3.5 mg/l. During the periods from April 1 to June 15 and September 16 to December 31 the seasonal average shall not be less than 6.5 mg/l.

vi. Temperature

- (1) General - Shall not exceed 5° F (2.8° C) above the average 24 hour temperature gradient displayed during the 1961-1966 period, or a maximum of 86° F (30.0° C) whichever is less. Temperatures shall be measured outside of designated heat dissipation areas.
- (2) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis, subject to the following conditions:
 - (A) Maximum Length - As a guideline, heat dissipation areas shall not be longer than 3,500 feet, measured from the point where the waste discharge enters the stream.
 - (B) Maximum Width - Heat dissipation areas shall not exceed a maximum width of two-thirds the surface width measured from shore to shore at any stage of tide. Within any one heat dissipation area only one shore shall be used in determining the limits of the area.
 - (C) Maximum Cross Section - Heat dissipation areas shall not exceed a maximum of one-fourth of the cross sectional area of the stream.
 - (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
 - (E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

(F) Heat Dissipation Area Determinations - The determination of heat dissipation areas shall take into special consideration the extent and nature of the receiving waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform not to exceed 770/100 ml as a geometric average. Samples shall be taken at such frequency and location as to permit valid interpretation. Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 133 percent of background as of October 1, 1972 or 500 mg/l, whichever is less.

x. Total Alkalinity

Between 20 and 120 mg/l.

xi. Phenols

Not to exceed 0.005 mg/l, unless exceeded due to natural conditions.

xii. Synthetic Detergents (M.B.A.S.)

Maximum 30-day average 1.0 mg/l.

xiii. Chlorides

Maximum 200 mg/l.

xiv. Hardness

Maximum 30-day average 150 mg/l.

* * *

(d) DESIGNATED USES AND QUALITY CRITERIA - ZONE 4

1. Zone 4 Designated Uses:

For that portion of the Delaware River from R.M. 95.0 below mouth of Big Timber Creek (New Jersey) to R.M. 78.8 (Pennsylvania-Delaware Line): Industrial water supply after reasonable treatment; wildlife, maintenance of resident fish and other aquatic life, passage of anadromous fish; secondary contact recreation; and navigation.

2. Zone 4 Criteria:

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

- (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
- (2) Maximum 30-day average of 40 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, unless exceeded due to natural conditions.

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5.

v. Dissolved Oxygen

24 hour average concentration shall not be less than 3.5 mg/l. During the periods from April 1 to June 15 and September 16 to December 31 the seasonal average shall not be less than 6.5 mg/l.

vi. Temperature

- (1) General - Shall not exceed 5° F (2.8° C) above the average 24 hour temperature gradient displayed during the 1961-1966 period, or a maximum of 86° F (30.0° C) whichever is less. Temperatures shall be measured outside of designated heat dissipation areas.
- (2) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis, subject to the following conditions:
 - (A) Maximum Length - As a guideline, heat dissipation areas shall not be longer than 3,500 feet, measured from the point where the waste discharge enters the stream.
 - (B) Maximum Width - Heat dissipation areas shall not exceed a maximum width of two-thirds the surface width measured from shore to shore at any stage of tide. Within any one heat dissipation area only one shore shall be used in determining the limits of the area.
 - (C) Maximum Cross Section - Heat dissipation areas shall not exceed a maximum of one-fourth of the cross sectional area of the stream.
 - (D) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
 - (E) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.

(F) Heat Dissipation Area Determinations - The determination of heat dissipation areas shall take into special consideration the extent and nature of the receiving waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform not to exceed 770/100 ml as a geometric average. Samples shall be taken at such frequency and location as to permit valid interpretation. Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Dissolved Solids

Not to exceed 133 percent of background as of October 1, 1972.

x. Total Alkalinity

Between 20 and 120 mg/l.

xi. Phenols

Not to exceed 0.02 mg/l, unless exceeded due to natural conditions.

xii. Synthetic Detergents (M.B.A.S.)

Maximum 30-day average 1.0 mg/l.

xiii. Chlorides

Maximum 250 mg/l at R.M. 92.47.

* * *

(e) DESIGNATED USES AND QUALITY CRITERIA - ZONE 5

1. Zone 5 Designated Uses:

For that portion of the Delaware River from R.M. 78.8 (Pennsylvania-Delaware Line) to R.M. 48.2 (Liston Point, Delaware): Industrial water supply after reasonable treatment, navigation, wildlife, passage of anadromous fish, from R.M. 78.8 to R.M. 48.2; maintenance of resident fish and other aquatic life from R.M. 78.8 to R.M. 70.0; propagation of resident fish and other aquatic life from R.M. 70.0 to R.M. 48.2; secondary contact recreation from R.M. 78.8 to R.M. 59.5 (Chesapeake and Delaware Canal, Delaware); primary contact recreation from R.M. 59.5 to R.M. 48.2.

2. Zone 5 Criteria:

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

(1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.

(2) Maximum 30-day average of 40 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, unless exceeded due to natural conditions.

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5.

v. Dissolved Oxygen

24 hour average concentration shall not be less than 3.5 mg/l at R.M. 78.8, 4.5 mg/l at R.M. 70.0 and 6.0 mg/l at R.M. 59.5. During the periods from April 1 to June 15 and September 16 to December 31 the seasonal average shall not be less than 6.5 mg/l in the entire zone.

vi. Temperature

- (1) General - Shall not be raised above ambient by more than 4° F (2.2° C) during September through May nor more than 1.5° F (0.8° C) during June through August, nor shall maximum temperatures exceed 86° F (30.0° C). Temperatures shall be measured outside of designated heat dissipation areas.
- (2) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis, subject to the following conditions:
 - (A) Maximum Length - As a guideline, heat dissipation areas shall not be longer than 3,500 feet, measured from the point where the waste discharge enters the stream.
 - (B) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
 - (C) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.
 - (D) Heat Dissipation Area Determinations - The determination of heat dissipation areas shall take into special consideration the extent and nature of the receiving waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

Fecal coliform not to exceed 770/100 ml as a geometric average from R.M. 78.8 to R.M. 59.5 and 200/100 ml from R.M. 59.5 to R.M. 48.2. Samples shall be taken at such frequency and location as to permit valid interpretation. Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Alkalinity

Between 20 and 120 mg/l.

x. Phenols

Not to exceed 0.01 mg/l, unless exceeded due to natural conditions.

xi. Synthetic Detergents (M.B.A.S.)

Maximum 30-day average 1.0 mg/l.

* * *

(f) DESIGNATED USES AND QUALITY CRITERIA - ZONE 6

1. Zone 6 Designated Uses:

For that portion of the Delaware Bay from R.M. 48.2 (Liston Point, Delaware) to R.M. 0.0 (Atlantic Ocean): Industrial water supply after reasonable treatment; wildlife, maintenance and propagation of resident fish, shellfish and other aquatic life, and passage of anadromous fish; primary contact recreation; and navigation.

2. Zone 6 Criteria:

i. Floating, Suspended, Colloidal and Settleable Solids; Oil, Grease, Color and Turbidity

- (1) None noticeable in the water or deposited along the shore or on the aquatic substrata in quantities detrimental to the natural biota. None which would render the waters unsuitable for the designated uses.
- (2) Maximum 30-day average of 40 Jackson Turbidity Units (JTU), a maximum of 150 JTU at any time, unless exceeded due to natural conditions.

ii. Toxic or Deleterious Substances, Including But Not Limited to Mineral Acids, Caustic Alkali, Cyanides, Heavy Metals, Carbon Dioxide, Ammonia or Ammonium Compounds, Chlorine, Phenols, Pesticides, Etc.

None, either alone or in combination with other substances, in such concentrations as to affect humans or be detrimental to the natural aquatic biota, produce undesirable aquatic life, or which would render the waters unsuitable for the designated uses.

iii. Taste and Odor Producing Substances

None offensive to humans or which would produce offensive tastes and/or odors in biota used for human consumption. None which would render the waters unsuitable for the designated uses.

iv. pH

Between 6.5 and 8.5.

v. Dissolved Oxygen

24 hour average concentration shall not be less than 6.0 mg/l. Not less than 5.0 mg/l at any time, unless due to natural conditions.

vi. Temperature

- (1) General - Shall not be raised above ambient by more than 4° F (2.2° C) during September through May nor more than 1.5° F (0.8° C) during June through August, nor shall maximum temperatures exceed 85° F (29.4° C). Temperatures shall be measured outside of designated heat dissipation areas.
- (2) Heat Dissipation Areas - The limitations specified above may be exceeded in designated heat dissipation areas by special permission on a case-by-case basis, subject to the following conditions:
 - (A) Maximum Length - As a guideline, heat dissipation areas shall not be longer than 3,500 feet, measured from the point where the waste discharge enters the stream.
 - (B) Adjacent Heat Dissipation Areas - Where waste discharges would result in heat dissipation areas in such close proximity to each other as to impair protected uses, additional limitations may be prescribed to avoid such impairment.
 - (C) Rate of Temperature Change - The rate of temperature change in designated heat dissipation areas shall not cause mortality of fish or shellfish.
 - (D) Heat Dissipation Area Determinations - The determination of heat dissipation areas shall take into special consideration the extent and nature of the receiving waters so as to meet the intent and purpose of the criteria and standards including provision for the passage of free-swimming and drifting organisms so that negligible or no effects are produced on their populations.

vii. Radioactivity

Current U. S. Public Health Service Drinking Water Standards shall apply.

viii. Bacterial Quality

(1) Approved Shellfish Harvesting Waters - Where harvesting of shellfish is permitted, requirements established by the National Shellfish Sanitation Program as set forth in its current manual of operations shall apply.

(2) All Other Waters - Fecal coliform levels shall not exceed a geometric average of 200/100 ml.

Samples shall be obtained at sufficient frequencies and at locations and during periods which will permit valid interpretation of laboratory analyses. Appropriate sanitary surveys shall be carried out as a supplement to such sampling and laboratory analyses.

ix. Total Alkalinity

Between 20 and 120 mg/l.

x. Phenols

Not to exceed 0.01 mg/l, unless exceeded due to natural conditions.

xi. Synthetic Detergents (M.B.A.S.)

Maximum 30-day average 1.0 mg/l.

* * *

7:9-4.8 SURFACE WATER CLASSIFICATIONS

(a) ATLANTIC COASTAL PLAIN CLASSIFICATIONS

1. Class FW-1 Note: (All boundaries referred to in i. through vi. as they existed December, 1966.)

Manasquan River Watershed

- i. Allaire State Park (1) Those portions of the first and second southerly tributaries to the Manasquan River west of Hospital Road situated wholly within the Allaire State Park boundaries.
- (2) The easterly tributary to the brook feeding Brisbane Lake situated wholly within the Allaire State Park boundaries downstream to its confluence with the westerly tributary.

Cedar Creek Watershed

- ii. Greenwood Forest Fish & Game Tract (1) Webbs Mill Branch and tributaries situated wholly within the Greenwood Forest Tract boundaries.
- (2) Chamberlain's Branch and five tributaries originating in and situated wholly within the Greenwood Forest Tract boundaries upstream from the blueberry farm exception, also other tributaries to Chamberlain's Branch situated wholly within the Greenwood Forest Tract boundaries.

Wading River Watershed

- iii. Greenwood Forest Fish & Game Tract Westerly tributary to the Howardsville Cranberry Bog Reservoir and tributaries situated wholly within the Greenwood Forest Tract boundaries.

Barneгат Bay Watershed

- iv. Island Beach State Park All the fresh water ponds on Island Beach State Park.

Manahawkin Creek Watershed

- v. Bass River State Forest (1) Tommy's Branch from its headwaters downstream to the Bass River State Forest Recreation Area service road.
- (2) Falkenburg Branch of Lake Absegami from its headwaters downstream to the lake.

Mullica River Watershed

- vi. Wharton Tract
- (1) Deep Run and tributaries from its headwaters downstream to Springer's Brook.
 - (2) Skit Branch and tributaries from its headwaters downstream to confluence with Robert's Branch.
 - (3) Tulpehocken Creek and tributaries from its origin downstream to its confluence with Featherbed Branch.
 - (4) The westerly tributaries to Tulpehocken Creek and those natural ponds within the lands bounded by Hawkins Road, Hampton Gate Road, and Sandy Ridge Road.
 - (5) Stream in the southeasterly corner of the Wharton Tract lying between Ridge Road and Seaf Weeks Road down to the Wharton Tract boundaries.
 - (6) Brook and tributaries between and immediately to the west of Tylertown and Crowleytown from its headwaters downstream to the head of tide at mean high water.
 - (7) The easterly branches of the Batsto River from Batsto Village upstream to the confluence of Skits Branch.
 - (8) Gun Branch from its headwaters downstream to U. S. Route 206.

Great Egg Harbor River Watershed

- vii. Tuckahoe
Public Hunting
and Fishing
Grounds

Hawkin's Creek and the next adjacent tributary to the Great Egg Harbor River lying to the north from their origin downstream to where the influence of impounding occurs.

2. Class FW-2

- i. Cranberry Brook and tributaries upstream from the intake of the Monmouth Consolidated Water Company near the New York-Long Branch Railroad Crossing.

- ii. Shark River and tributaries upstream from Remson's Mill Road.
- iii. Jumping Brook and tributaries above intake of Monmouth Consolidated Water Company near Old Corlies Avenue.
- iv. Main stem of Manasquan River and tributaries upstream from Garden State Parkway.
- v. Absecon Creek and tributaries upstream from Atlantic City Reservoir Dam in the City of Absecon.

3. Class FW-3

All other fresh water basins or portions thereof in the Coastal Plain upstream from head of tide except those designated as FW-1 or FW-2.

4. Class TW-1

- i. All tidal waters of Shark River and tributaries from head of tide to surf waters.
- ii. All tidal waters of Jumping Brook and tributaries downstream from head of tide to Shark River and to surf waters.
- iii. All tidal waters of the Manasquan River and tributaries downstream from near the Garden State Parkway to surf waters.
- iv. All other tidal waters of the Plain downstream from the head of tide to surf waters.

5. Class TW-2

None

6. Class TW-3

None

7. Class CW-1

Ocean waters within 1,500 feet from mean low tide to a depth of 15 feet, whichever is more distant from the mean low tide line, from Sandy Hook to Cape May Point.

8. Class CW-2

Ocean waters not included under Class CW-1 out to the three mile limit.

(b) DELAWARE RIVER BASIN CLASSIFICATIONS

Note: Classifications of the Delaware River and Delaware Bay are contained in 7:9-4.7.

1. Class FW-1 Note: (All boundaries on State lands referred to in i. through ix. as they existed December, 1966.)

Clove Brook Watershed

- i. High Point State Park
- (1) The second and third northerly tributaries to Clove Brook and tributaries downstream of Steenykill Lake to their confluence with Clove Brook or the High Point State Park boundaries.
 - (2) The northerly tributaries to Mill Brook due west of Steenykill Lake within the High Point State Park boundaries.

Shimers Brook Watershed

- ii. High Point State Park
- All that portion and tributaries to Shimers Brook and tributaries within the High Point State Park boundaries.

Flatbrook Watershed

- iii. High Point State Park and Stokes State Forest
- All surface waters of the Flatbrook Drainage within the boundaries of High Point State Park and Stokes State Forest except the following which are classified FW-2 and designated thus [].

- (A) [Saw Mill Pond and Big Flatbrook downstream.]
- (B) [Mashipacong Pond and its outlet stream (Parker Brook) to its confluence with the Big Flatbrook.]
- (C) [Lake Wapalanne and its outlet stream to its confluence with the Big Flatbrook.]
- (D) [Lake Ocquittunk and waters connecting it with the Big Flatbrook.]
- (E) [Stony Lake and its outlet stream (Stony Brook) downstream to its confluence with the Big Flatbrook.]

- (F) [Kittatinny Lake, that portion of its inlet stream outside the Stokes State Forest boundaries, its outlet stream including the Shotwell Camping Area tributary to its confluence with the Big Flatbrook.]
- (G) [Deer Lake, its outlet stream to Lake Ashroe, Lake Ashroe and portions of its tributaries outside the Stokes State Forest boundaries, and its outlet stream to its confluence with the Big Flatbrook.]
- (H) [Lake Shawanni and its outlet stream to its confluence with the Big Flatbrook.]
- (I) [Crigger Brook and tributary to its confluence with the Big Flatbrook.]

Flatbrook Watershed

- iv. Fish and Game Tracts (1) Tributary to the Little Flatbrook originating north of the Bevans-Layton Road downstream to the first pond adjacent to the Fish and Game headquarters building.
- (2) Two tributaries to the Big Flatbrook originating along Struble Road in Stokes State Forest downstream to their confluence with the Big Flatbrook on Fish and Game property boundaries.

Pequest Watershed

- v. Wittingham Tract Northwesterly tributaries to the Pequest including Big Spring within the Wittingham Tract (southwest of Springdale) boundaries from their origin to their confluence with the Pequest River.
- vi. Johnsonburg Tract Mud Pond and outlet stream down to the Erie-Lackawanna Railroad trestle north of Johnsonburg.

Crosswicks Creek Watershed

- vii. Colliers Mills Fish & Game Tract All tributaries to Lahaway Creek originating in the Colliers Mills Tract NNE of Archers Corner from their origin down to Lahaway Creek.

Rancocas Creek Watershed

- viii. Lebanon State Forest
- (1) Deer Park Branch and tributaries near Buckingham downstream to its confluence with Pole Bridge Branch.
 - (2) Tributaries to the South Branch of Mount Misery Brook situated wholly within Lebanon State Forest boundaries.
 - (3) Cooper Branch and tributaries downstream to Pakim Pond, and tributaries to Cooper Branch downstream of Pakim Pond situated wholly within the boundaries of Lebanon State Forest.
 - (4) Shinns Branch and tributaries situated wholly within the Lebanon State Forest boundaries.
 - (5) Jade Run situated within the Lebanon State Forest boundaries.
 - (6) MacDonald's Branch and tributaries situated within the Lebanon State Forest boundaries.

Rancocas Creek Watershed

- ix. Pasadena Fish & Game Tract
- The two easterly branches of the South Branch of Mount Misery Brook situated wholly within the Pasadena Tract boundaries.

Maurice River Watershed

- x. Glassboro Fish & Game Tract
- That tributary to the Branch of Little Ease Run having its confluence just south of Stangor Avenue.
First and second easterly tributaries to Little Ease Run north of Academy Avenue.
- xi. Millville Fish & Game Tract
- (1) Joshua and Pine Branches of Buckshutem Creek to their confluences with Buckshutem Creek.
 - (2) Gravelly Run downstream to the Millville Fish and Game Tract boundaries.

xii. Peaseles Fish and Game Tract (1) Middle Branch of Muskee Creek from its origin to the Peaseles Tract boundaries.

(2) Cedar Branch of the Manumuskin River from its origin to the Peaseles Tract boundaries.

Nantuxent Creek Watershed

xiii. Millville Fish & Game Tract Cedar and Mile Branches to Shaw's Mill Pond.

Dividing Creek Watershed

xiv. Millville Fish & Game Tract (1) Those tributaries to Cedar Creek originating and situated wholly within the Fish and Game Millville Tract boundaries.

(2) Those portions of tributaries to Dividing Creek situated wholly within the Millville Fish and Game Tract boundaries north of Whitehead Station.

Middle Marsh Creek Watershed

xv. Dix Fish & Game Tract All fresh waters arising in and situated wholly within the Dix Tract boundaries.

West Creek Watershed

xvi. Belleplaine State Forest (1) The portion of that tributary to West Creek originating about 0.9 miles southeast from Hoffman's Mill and situated wholly within the Belleplaine State Forest boundaries.

(2) Eastern branch of the easterly tributary to Pickle Factory Pond from its origin to its confluence with the western branch.

East Creek Watershed

xvii. Belleplaine State Forest (1) All tributaries to Lake Nummi from their origin downstream to Lake Nummi.

(2) Those two tributaries to Savages Run and portions thereof downstream of Lake Nummi that are situated wholly within the Belleplaine State Forest boundaries.

- (3) A stream and tributaries thereto originating just south of East Creek Mill Road, NNE of Eldora 1.2 + miles and situated wholly within the Belleplain State Forest boundaries.

xviii. Delaware Water Gap National Recreation Area (DWGNRA)

- (1) Van Campen's Brook above the village of Millbrook.
- (2) All tributaries to the Flatbrook running from the Kittatinny Ridge and situated wholly within the proposed DWGNRA boundaries.
- (3) Rundle Brook upstream of Flatbrook Road.
- (4) Smith Ferry Brook.
- (5) Donkey's Corners Brook.
- (6) Sambo Island Brook and Pond.
- (7) The headwaters of Jacksonburg Creek situated wholly within the proposed DWGNRA boundaries.
- (8) Coppermine Brook in Pahaquarry.
- (9) Sunfish Pond, its outlet stream to the Delaware River, and all unnamed waters situated wholly within the former Worthington Tract boundaries.
- (10) Dunnfield Creek to Route 46.

2. Class FW-2

- i. The Delaware and Raritan Canal.
- ii. All tributaries to main stem, Delaware River, upstream from Trenton Water Works intake except those designated as FW-1.
- iii. Upstream from head of tide of all fresh water basins tributary to main stem, Delaware River, from Assunpink Creek south to and including Big Timber Creek.
- iv. Laurel (Quinton) Lake and Elkinton Mill Pond, tributary to Alloways Creek upstream from respective dams.
- v. All streams in Cape May County upstream from head of tide or tidal barriers thereon.

3. Class FW-3

- i. Upstream from head of tide of all fresh water basins tributary to main stem, Delaware River, from Woodbury Creek south to and including Salem Creek.
- ii. Upstream from head of tide of all fresh water basins tributary to main stem, Delaware River, south of Alloways Creek to and including Maurice River.
- iii. Alloways Creek and tributaries except those designated as FW-2.

4. Class TW-1

- i. Tidal tributaries to main stem, Delaware River, between Trenton Water Works intake to and including Rancocas Creek.
- ii. Tidal tributaries to main stem, Delaware River and Delaware Bay south from and including Oldman's Creek.

5. Class TW-2

Tidal tributaries to main stem, Delaware River, south of Rancocas Creek and north of Oldman's Creek.

6. Class TW-3

None

(c) HACKENSACK RIVER BASIN CLASSIFICATIONS

1. Class FW-1

None

2. Class FW-2

Hackensack River Basin above Oradell Dam.

3. Class FW-3

Overpeck Creek and tributaries to tide dam and nontidal portions of tributaries to Hackensack River downstream from Oradell Dam.

4. Class TW-1

Hackensack River and all tidal portions of tributaries from Oradell Dam to confluence with Overpeck Creek.

5. Class TW-2

- i. Overpeck Creek and tidal tributaries from tide dam to confluence with Hackensack River.
- ii. Berry's Creek and all tidal tributaries to Hackensack River below its confluence with Overpeck Creek.
- iii. Hackensack River main stem from Overpeck Creek to the confluence with Berry's Creek.

6. Class TW-3

Hackensack River main stem downstream of Berry's Creek.

(d) HUDSON RIVER, KILL VAN KULL, ARTHUR KILL BASIN CLASSIFICATIONS

1. Class FW-1

None

2. Class FW-2

- i. Rahway River and tributaries above Rahway Water Department intake downstream from the Rahway-Clark municipal boundaries.
- ii. Robinson's Branch and tributaries above Middlesex Water Company intake at the reservoir dam.

3. Class FW-3

- i. Elizabeth River and tributaries above Broad Street Bridge, Elizabeth.
- ii. Nontidal tributaries to Morses Creek.
- iii. Nontidal tributaries to Piles Creek.
- iv. Rahway River below Rahway Water Department intake to head of tide (West Grand Avenue, Rahway).
- v. South Branch Rahway River to head of tide (Hazelwood Avenue, Rahway).
- vi. Robinson's Branch below Middlesex Water Company intake to head of tide (Hamilton Street, Rahway).
- vii. Nontidal tributaries to Smith Creek.
- viii. Nontidal tributaries to Woodbridge Creek.
- ix. All other fresh, nontidal waters not mentioned herein.

4. Class TW-1

None

5. Class TW-2

- i. Hudson River and its New Jersey tidal tributaries from a north-south line connecting Constable Hook (Bayonne, New Jersey) to St. George (Staten Island, New York) to the Bergen County (New Jersey) - Rockland County (New York) line.
- ii. Arthur Kill and its New Jersey tidal tributaries between Outerbridge Crossing and a line connecting Ferry Point (Perth Amboy, New Jersey) to Wards Point (Staten Island, New York).

- iii. Tidal portion of Rahway River from Route 1-9 crossing to head of tide (West Grand Avenue, Rahway).
- iv. Tidal portion of South Branch Rahway River to head of tide (Hazelwood Avenue, Rahway).
- v. Tidal portion of Robinson's Branch to head of tide (Hamilton Street, Rahway).
- vi. All other tidal waters not mentioned herein.

6. Class TW-3

- i. Kill Van Kull westerly from a north-south line connecting Constable Hook (Bayonne, New Jersey) to St. George (Staten Island, New York).
- ii. Arthur Kill from the Central R.R. bridge crossing Newark Bay to the Outerbridge Crossing.
- iii. Tidal portion of Elizabeth River to Broad Street Bridge (Elizabeth).
- iv. Tidal portion of Morses Creek.
- v. Tidal portion of Piles Creek.
- vi. Tidal portion of Rahway River from its mouth at the Arthur Kill to Route 1-9 crossing.
- vii. Tidal portion of Smith Creek.
- viii. Tidal portion of Woodbridge Creek.

(e) PASSAIC RIVER BASIN INCLUDING NEWARK BAY CLASSIFICATIONS

1. Class FW-1

Wanaque Watershed

- i. A. S. Hewitt State Forest
- (1) Cooley Brook, tributaries and Surprise Lake situated wholly within the Hewitt State Forest boundaries.
 - (2) Green Brook, tributaries and West Pond situated wholly within the Hewitt State Forest boundaries.

Pequannock Watershed

- ii. City of Newark Holdings
- (1) Tributary to Pequannock River at Green Pond Junction.
 - (2) Cedar Pond, Hanks Pond and all tributaries thereto.
 - (3) Tributary to the Pequannock River joining the main stem 3500' + southeast of the Sussex-Passaic County line, in the vicinity of Jefferson.
 - (4) Pascack Brook and tributaries thereto north of Canistear Reservoir situated wholly within the boundaries of Newark Watershed.
 - (5) Cherry Ridge Brook and tributaries thereto north of Canistear Reservoir situated wholly within Wawayanda State Park and Newark Watershed boundaries.
 - (6) The southern branch of the easterly tributary to Canistear Reservoir.
 - (7) Pequannock River and tributaries thereto upstream from the confluence with Pascack Brook.
 - (8) Northwestern tributary to Oak Ridge Reservoir.
 - (9) Westerly tributary to Lake Stockholm Brook situated wholly within the Newark Watershed boundaries.

- (10) Lud-Day Brook downstream to its confluence with a tributary from Camp Garfield.
- (11) Brook between Hamburg Turnpike and Williamsville-Stockholm Road, downstream to its confluence with Lake Stockholm Brook, north of Route 23.

Rockaway Watershed

iii. Berkshire
Valley Fish
& Game Tract

Stephens Brook north of the Berkshire Valley Tract boundaries

2. Class FW-2

- i. Main stem and all tributaries to the Passaic River above Passaic Valley Water Commission intake at Little Falls, except those waters designated as FW-1.
- ii. Saddle River and tributaries and Ho-Hok-Kus Brook and tributaries upstream from the confluence of Saddle River and Ho-Ho-Kus Brook in the vicinity of the intake of the Hackensack Water Company.
- iii. Haledon Reservoir and tributaries thereto.

3. Class FW-3

- i. Saddle River and tributaries upstream from head of tide to its confluence with Ho-Ho-Kus Brook.
- ii. Main stem and tributaries of Passaic River between Dundee Lake Dam and Passaic Valley Water Commission intake at the Little Falls.
- iii. Nontidal tributaries to the Passaic River, below Dundee Lake Dam.
- iv. Bound Creek upstream from head of tide and nontidal tributaries.

4. Class TW-1

None

5. Class TW-2

- i. Passaic River upstream from confluence with Second River to head of tide at Dundee Dam.
- ii. Tidal portion of Saddle River and all other tidal portions of tributaries to the Passaic River.
- iii. Tidal portion of Bound Creek.
- iv. All other tidal waters not mentioned herein.

6. Class TW-3

- i. Newark Bay north of Central R.R. bridge crossing up to the mouth of the Passaic River and up to the mouth of the Hackensack River.
- ii. Main stem of Passaic River from its mouth to point of entry of the Second River.

(f) RARITAN RIVER BASIN INCLUDING RARITAN BAY - SANDY HOOK BAY CLASSIFICATION

1. Class FW-1

None

2. Class FW-2

- i. The Delaware and Raritan Canal to the Deep Lock at New Brunswick.
- ii. The Raritan River and Millstone River and all tributaries above the intakes of the Elizabethtown Water Company at their confluence.
- iii. The Middle Brook and tributaries above the intake of the Bound Brook Water Company downstream from the confluence of the West Branch Middle Brook and East Branch Middle Brook.
- iv. The South River and tributaries above the proposed tidal dam site downstream from the confluence with Tennett Brook.
- v. Lawrence Brook and tributaries above the intake of the New Brunswick Water Department at Weston's Mill Dam.
- vi. The Swimming River and tributaries above the intake of the Monmouth Consolidated Water Company at the Swimming River Reservoir Dam.

3. Class FW-3

- i. The main stem of the Raritan River and all tributaries below the intake of the Elizabethtown Water Company to the Fieldsville Dam.
- ii. All other nontidal portions of tributaries to the Raritan River below Fieldsville Dam and to Raritan Bay - Sandy Hook Bay.

4. Class TW-1

- i. The main stem of the Raritan River and tidal tributaries from Fieldsville Dam to the mouth of the Raritan River.
- ii. Raritan Bay - Sandy Hook Bay and all tidal tributaries exclusive of the Arthur Kill.

5. Class TW-2

None

6. Class TW-3

None

(g) WALLKILL RIVER BASIN CLASSIFICATION

1. Class FW-1

Lake Lookout Brook Watershed

- i. Newark City Holdings, Sussex Woodlands, Inc. and Wawayanda Tract

Lake Lookout Brook and tributaries from its headwaters in the Newark City Holdings downstream through the property of Sussex Woodlands, Inc. into the State-owned Wawayanda Tract to its confluence with the outlet stream from Lake Wawayanda.

Laurel Pond Watershed

- ii. Wawayanda Tract

Laurel Pond, including its outlet stream and tributaries down to the outlet stream from Lake Wawayanda.

Sand Hills Brook Watershed

- iii. Hamburg Mountain Tract

The upstream portion of Sand Hills Brook situated wholly within the Hamburg Mountain Tract boundaries.

Black Creek Watershed

- iv. Hamburg Mountain Tract

All those portions of three (3) tributaries to Black Creek originating in the Hamburg Mountain Tract from their origin downstream to the tract boundaries.

Franklin Pond Creek Watershed

- v. Hamburg Mountain Tract

The first tributary to Franklin Pond Creek just south of Hamburg Mountain flowing toward the Wallkill River and situated wholly within the Hamburg Mountain Tract.

Hardistonville Watershed

- vi. Hamburg Mountain Tract

The third tributary just southwest of Hamburg Mountain flowing toward the Wallkill River and situated wholly within the Hamburg Mountain Tract.

Lake Rutherford Watershed

- vii. Sussex Borough Water Supply

Lake Rutherford northwest of Colesville.

Clove Brook Watershed

viii. High Point State Park

Those portions of the two (2) northernmost tributaries to Clove Brook situated wholly within the High Point State Park boundaries immediately east of Steenykill Lake.

Rutgers Creek Watershed

ix. High Point State Park

The Cedar Swamp headwaters of the tributary to Rutgers Creek situated wholly within the High Point State Park boundaries just south of the New Jersey-New York line.

2. Class FW-2

- i. Wallkill River and tributaries upstream from intake of Borough of Franklin Water Works at Franklin Pond.
- ii. Branch of Pochuck Creek, supply of the Highland Lakes Improvement Company.

3. Class FW-3

The Wallkill River and all tributaries except those designated as FW-1 or FW-2.

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