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SUBCHAPTER 4
SURFACE WATER QUALITY STANDARDS



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7:9-4.1 Scope of Rules

Unless otherwise provided by rule or statute, the following shall constitute the rules of the Department of Environmental Protection governing 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, pursuant to N.J.S.A. 13:1D-1 et. seq., the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et. seq. and the Water Quality Planning Act, N.J.S.A. 58:11A-1 et. seq.

7:9-4.2 Construction

These rules shall be liberally construed to permit the department and its various divisions to discharge its statutory functions.

7:9-4.3 (Reserved)

7:9-4.4 Definitions

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

"Acute Toxicity" means causing death or severe damage to an organism by poisoning during a brief exposure period, normally 96 hours or less.

"Agricultural Water Supply" means water used for livestock, horticulture, and silviculture.

"Ambient Temperature" means the temperature of a water body beyond the portion of that water body which is affected by the localized heated waste discharge or discharge complex.

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

"Application Factor" means a number applied to an acute toxicity test to estimate a concentration of a substance which protects all life stages of the test organism in waters of varying quality, as well as to protect associated organisms within the aquatic environment that have not been tested and that may be more sensitive to the test constituent. In the instance where the maximum acceptable toxicant concentration (MATC) has been independently determined an application factor (AF) will equal the quotient of the MATC divided by the 96hour LC50 ($AF = MATC/96hr\ LC50$).

"Aquatic Substrata" means soil material and attached biota underlying the water.

"Bioaccumulation" means uptake and retention of environmental substances by an organism from its environment.

"Bioassay" means a determination of the concentration or dose of a given material necessary to affect a test organism under stated conditions.

"Biota" means the animal and plant life of the region; flora and fauna collectively.

"Calculated Changes" means changes to representative (as may be determined by the department) water quality data which may be demonstrated by any acceptable mathematical predictive tool.

"Chronic Toxicity" means causing death or damage to an organism by poisoning during prolonged exposure, which depending on the organism tested and the test conditions, may range from more than 96 hours to weeks, months, or years.

"Conservative Substance" means a substance that is relatively persistent and resistant to degradation having a one-half - life of 96 hours or more.

"Cumulative Substance" means a substance that increases in concentration by successive additions.

"Department" means New Jersey Department of Environmental Protection.

"Designated Area" means the geographic extent of waters where designated use and criteria described herein are to be protected or met.

"Designated Use" means present or potential uses of surface waters.

"Disinfection" means the removal, destruction or inactivation of pathogenic and indicator organisms in wastewater.

"Epilimnion" means the upper region of a thermally stratified body of water which is freely circulating and extends from the surface to the thermocline; the epilimnion does not have a permanent temperature stratification.

"Eutrophic Lake" means lakes with a good supply of nutrients which may support rich organic production, such as algae blooms and are commonly deficient in dissolved oxygen below the thermocline when stratified.

"Flow-Through Bioassay" means a bioassay test technique which permits test solutions to flow into and out of the test chambers on a once through basis for the duration of the test.

"Fresh Tidal Water" means waters affected by tidal action, the salinity concentration will generally be less than or equal to 3.5 parts per thousand at mean high tide.

"Heat Dissipation Area" means a 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 in compliance with this subchapter.

"High Quality Waters" means those surface waters having biological, chemical or physical characteristics which are better than water quality standards and the aquatic biological community or other uses are sensitive to changes in water quality.

"Hypolimnion" means the lower 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.

"Important Species" means species which are commercially or recreationally valuable (e.g., within the top ten species landed--by dollar value); threatened or endangered; critical to the organization and maintenance of the ecological system; or necessary in the food web for the well-being of species identified in this definition.

"Industrial Water Supply" means water used for processing or cooling.

"Intermittent Stream" means a stream with less than an one-tenth (0.1) cubic feet per second minimum consecutive 7 day flow with a 10 year recurrence interval, or a drainage area of less than one square mile.

"Lake, Pond or Reservoir" means any impoundment, whether naturally created or created in whole or in part by the building of structures for the retention of surface water.

"LC50" means the concentration of a toxicant which is lethal to fifty percent of the organisms of a particular species under a given set of conditions in a specified length of time (i.e., 24- 48, 96 hours).

"Life-Cycle Toxicity Test" means a test that consists of exposing several groups of individuals of one species to different concentrations of a toxic agent throughout a life cycle in order to study the effect of the toxic agent on the survival, growth, and reproduction of the species. To ensure that all life stages and life processes are exposed, the test begins with embryos or nearly hatched larvae less than forty-eight hours old, continues throughout maturation and reproduction, and with fish, ends not less than thirty days (ninety days for salmonids) after the hatching of the next generation.

"Maximum Acceptable Toxicant Concentration (MATC)" means the highest concentration of a toxicant that has no adverse effect on survival, growth, or reproduction of a species based on the results of a life-cycle or partial life-cycle test. A life-cycle or partial life-cycle test cannot produce a value for the MATC; a test can only produce limits within which the MATC must fall.

"Measurable Changes" means changes determined by any biological, chemical, or physical analytical method conducted in accordance with USEPA approved methods as identified in 40 C.F.R. 136 or other analytical methods (e.g., ecological indices) approved by the department.

"Mixing Zones" means 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 in compliance with this subchapter.

"Natural Flow" means water flow that would exist in a waterway without the addition of flow of artificial origin.

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

"Natural Water Quality" means water quality that would exist in a waterway without the addition of water or water borne substances from artificial origin.

"NJDEP" means New Jersey Department of Environmental Protection.

"Nonconservative Substance" means a substance that degrades relatively quickly having a one-half (1/2) -life of less than 96 hours.

"Noncumulative Substance" means a substance that does not increase in toxicity by successive additions.

"Nondegradation Waters" means those surface waters of the State whose water quality and water uses shall be preserved because of their outstanding State or national resource value. This definition shall not apply to those surface waters that have special water quality standards (e.g., FW-Central Pine Barrens and FW-Lower Mullica and Wading Rivers-Central Pine Barrens).

"Nonpersistent Substance" (see definition for nonconservative substance).

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

"NPDES" means National Pollutant Discharge Elimination System.

"Partial Life-Cycle Toxicity Test" means a test that consists of exposing several groups of individuals of one species to different concentrations of a toxic agent through part of a life-cycle in order to study the effect of the toxic agent on survival, growth, and reproduction. Partial life-cycle tests are conducted with fish species that require more than a year to reach sexual maturity so that the test can be completed in less than 15 months, but still expose all major life stages to the toxicant. With fish, exposure to the toxic agent begins with immature juveniles at least two months prior to active gonad development, continues through maturation and reproduction, and ends not less than 30 days (90 days for salmonids) after the hatching of the next generation.

"Persistent Substance" (see definition for a conservative substance).

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

"Public Hearing" is a legislative type hearing before a representative of the department providing the opportunity for public comment, but which does not include cross-examination.

"Secondary Contact Recreation" means 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" means temperature of a stream outside of the designated heat dissipation area.

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

"Thermocline" means the middle layer of a stratified body of water in which the change in temperature equals or exceeds 1.0 degree Centigrade (1.8 degrees Fahrenheit) per meter of depth.

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

"Total Residual Chlorine (TRC)" means all chemical species of dissolved gaseous chlorine and its oxidative derivations which can be detected by United States Environmental Protection Agency approved methods for the analysis of chlorine waters and wastewaters.

"Toxic Substances" means those substances, or combination of substances, which upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly through food chains, will, on the basis of information available to the department, cause death, disease, behavior abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformation, in such organisms or their offspring.

"Trout Maintenance Waters" means 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" means waters that are used by trout for spawning 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.

"USEPA" means United States Environmental Protection Agency.

"Wildlife" means all undomesticated animals.

7:9-4.5 Statements of Policy

(a) The following are statements of general 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. It is the policy of this State to restore, enhance and maintain the chemical, physical and biological integrity of its waters, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial and other uses of water.

2. It is the policy of the department not to permit the introduction of substances into the waters of the State which are known or suspected to be carcinogenic, mutagenic, or teratogenic. The department, to the maximum extent possible, will direct its control efforts to require the removal of such substances from wastewater discharges where such discharges are shown to already occur in the waters of the State.

3. It is the policy of the department that any other toxic substances in waters of the State shall not be at levels which are toxic to humans or to aquatic life or which bioaccumulate in aquatic organisms so as to render them unfit for human consumption.

4. Existing and intended uses of surface waters shall be maintained and protected. Where existing criteria are inadequate to support existing uses, such criteria shall be upgraded.

5. The department shall define the designated uses which are to be protected and maintained, identify those waters to which each designated use applies, and establish numerical or descriptive criteria for water quality substances in a manner that is consistent with the designated uses and policies described herein.

6. It is the objective of the department to restore tidal waters which are now at levels of quality below acceptable limits of quality for unrestricted shellfish harvesting.

(b) The following are statements of policy concerning interstate waters:

1. The designated uses and water quality criteria for the fresh and saline tidal tributaries (to head of tide) to the Delaware River, including the Delaware Bay, shall be as established at sections six and seven of this subchapter, or in accordance with the prevailing "Basin Regulations - Water Quality" adopted by the Delaware River Basin Commission as part of its Comprehensive Plan, whichever are more stringent.

2. The designated uses and water quality criteria for waters of the Interstate Sanitation District under the jurisdiction of the Interstate Sanitation Commission in the New Jersey-New York metropolitan area, shall be as established at section seven of this subchapter, or in accordance with the prevailing Interstate Sanitation Commission's Water Quality Regulations, whichever are more stringent.

(c) The following are statements of technical policy:

1. When existing water quality does not conform with the established minimum criteria solely as a result of natural causes, natural water quality characteristics shall prevail.

2. Except for intermittent streams, water quality criteria are expected to be maintained during periods when stream flows are at or greater than the minimum consecutive 7 day flow with a 10 year recurrence interval period.

3. Water quality criteria are expected to be maintained in intermittent streams during all natural flow conditions.

4. The following are statements of policy concerning non-thermal mixing zones:

i. In a non-thermal mixing zone, an area contiguous to discharge, receiving water quality may be allowed to fall below applicable water quality standards.

ii. The department will determine on a case-by-case basis the requirements for non-thermal mixing zones.

iii. The total area and volume of a body of water assigned to non-thermal mixing zones 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 or which diminishes other beneficial uses disproportionately. Furthermore, mortality of aquatic life shall not occur within the non-thermal mixing zone.

iv. In streams, 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 zones are allowed.

5. 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. These procedures shall be in accordance with USEPA approved methods as identified in 40C.F.R.136, and as required by a written quality assurance program which is approved by the department.

6. The following are statements of policy concerning bioassay procedures:

i. Flow-through bioassays will be utilized when existing scientific information is insufficient for developing water quality criteria or determining the impact of a wastewater discharge which is presumed or suspected to be toxic to aquatic life.

ii. The department shall establish from time to time a list of specific organisms to be used for conducting bioassays. Such organisms will be representative of the biota for the class of waters under consideration.

iii. The department, utilizing judgmental prudence, may establish a safety factor (in terms of a factor to be applied to the 96 hour LC50 value) which is more restrictive than those established in subsections 6(e), 7(e), and 8(c) of this subchapter. Such an application factor may become necessary to ensure adequate protection of organisms and life stages not tested but which may be more sensitive to the test constituent(s).

7. As a guideline the substances listed below should not exceed the specified limits:

	<u>mg/l</u>
i. Arsenic	0.05
ii. Barium	1.0
iii. Cadmium	0.01
iv. Chromium (Hexavalent)	0.05
v. Lead	0.05
vi. Mercury	0.005
vii. Selenium	0.01
viii. Silver	0.05

(d) The following are statements of policy concerning antidegradation:

1. Existing instream water uses shall be maintained and protected. No further water quality degradation which would interfere with or become injurious to existing water uses is allowable. Existing high quality waters which are better than those levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water shall be maintained and protected unless the State chooses, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, to allow lower water quality as a result of necessary and justifiable economic or social development. In no event, however, may degradation of water quality interfere with or become injurious to existing instream water uses. Additionally, no degradation shall be allowed in high quality waters which constitute an outstanding National or State resource. This antidegradation policy shall be applied as follows:

i. Nondegradation Waters are those waters currently classified as FW-1 at section 10 of this subchapter and whose uses and quality criteria are described at section 6 of this subchapter.

ii. High Quality Waters-Category One are waters having biological, chemical, or physical characteristics which are better than water quality standards. The uses of these high quality waters are so sensitive to any change in chemical or physical characteristics that it is presumed that any measurable or calculated changes to the instream characteristics will lead to eventual change or harm to the uses in these surface waters. The existing biological, chemical, or physical characteristics of High Quality Waters-Category One will be protected from any measurable or calculated changes. Surface waters identified as High Quality Waters-Category One are:

- A. FW-2 Trout Production waters and their tributaries;
- B. Surface waters classified as FW-2 Trout Maintenance or FW-2 Nontrout which are upstream of surface waters classified as FW-2 Trout Production;
- C. Shellfish waters classified as approved in chapter 12 of this title; or

D. Other high quality surface waters and their tributaries which flow through State and National Parks, Forests, and Fish and Wildlife lands.

iii. High Quality Waters-Category Two are waters having biological, chemical or physical characteristics which are better than water quality standards. The uses of these high quality waters are sensitive to changes in chemical or physical characteristics. However, these uses may be capable of being maintained within some range of change to the instream chemical or physical characteristics as may be determined by studies relating to biological and other use characteristics to chemical and physical characteristics of aquatic ecosystems. The High Quality Waters-Category Two are those waters having biological, chemical, or physical characteristics better than water quality standards and not identified as Nondegradation Waters or High Quality Waters-Category One.

2. In all situations where a lower classification of water may impinge upon a higher classification of water, the department, in implementing these standards, shall ensure the quality and uses of the higher classification are protected.

3. The following are statements of policy concerning nondegradation of Central Pine Barrens water quality:¹

i. The department shall not, in the performance of its statutory duties, approve any activity which alone or in combination with other activities, will cause degradation in the existing surface water quality characteristics of the Central Pine Barrens. The State encourages rational and ecologically sound agricultural practices and other appropriate uses.

ii. The department's Central Pine Barrens water quality policy is not intended to interfere with water control in the operation of cranberry bogs or blueberry production.

¹The designated uses and special water quality criteria for the Central Pine Barrens may be found at subsection 6(b), 6(c), and 6(e).

7:9-4.6 Fresh surface water designated uses and quality criteria

(a) Designated uses and quality criteria for FW-1 waters

1. Designated uses: 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. FW-1 quality criteria:

i. These waters, which are identified at section 10 of this subchapter shall be maintained as to quality in their natural state (set aside for posterity) and shall not be subject to any man-made wastewater discharges.

ii. Waters which originate wholly within State parks, forests and fish and wildlife lands, but not identified in section 10 of this subchapter shall not be subject to any new man-made wastewater discharges.

(b) Designated uses and quality criteria for FW-Lower Mullica and Wading Rivers - Central Pine Barrens are:

1. Designated uses: These waters shall be suitable for cranberry bog water supply and other agricultural uses; the maintenance, migration and propagation of the natural and established biota indigenous to this unique ecological system; public potable water supply after such treatment as shall be required by law or regulation; swimming; and other reasonable uses.

2. Class FW-Lower Mullica and Wading Rivers-Central Pine Barrens Quality Criteria:

i. Quality criteria for FW-Lower Mullica and Wading Rivers-Central Pine Barrens may be found at subsection (e) of this section and shall not apply to:

(1) Discharges which emanate from individual on-site sewage disposal systems which systems were in existence or for which a building permit had been issued prior to January 23, 1978, provided that such existing systems were installed and are operating in conformance with N.J.S.A. 58:11-23 et seq. and all regulations adopted thereunder; and all other appropriate Federal, State and local laws. Furthermore, any water quality standards in existence prior to January 23, 1978, shall remain in effect for previously existing individual on-site sewage disposal systems.

(2) Discharges from agricultural operations that were in existence prior to January 23, 1978, provided that such discharges are in compliance with existing best management practices, or other existing Federal, State, or local laws. Nothing in this subsection shall be construed to limit the ability of the US EPA or the NJ DEP to require additional control measures in conformance with future regulations regarding soil conservation, pesticides, best management practices, or other future Federal, State, or local laws. Furthermore, any water quality standards in existence prior to January 23, 1978, shall remain in effect for previously existing agricultural discharges.

(3) All point source discharges permitted prior to January 23, 1978, by the US EPA through the issuance of a NPDES permit, or by the NJ DEP through the issuance of State water pollution control permits, provided that such discharges are in compliance with all terms and conditions of the appropriate permit. Nothing in this subsection shall be construed to limit the ability of the US EPA or the NJ DEP to require:

(i) Technology based effluent control measures for classes of point sources, other than publicly owned treatment works, as may be required by Federal or State law;

(ii) Alternative effluent control strategies for publicly owned treatment works and other classes of point sources.

Furthermore, water quality standards in existence prior to January 23, 1978, shall remain in effect for these existing point source discharges.

ii. Seasonal or other natural conditions may cause a deviation in the water quality criteria. These deviations must be considered, after consulting with the department, in the design of any water resources project.

(c) Designated uses and quality criteria for FW-Central Pine Barrens

1. Designated uses: These waters shall be suitable for cranberry bog water supply and other agricultural uses; the maintenance, migration and propagation of the natural and established biota indigenous to this unique ecological system; public potable water supply after such treatment as shall be required by law or regulation; swimming; and other reasonable uses.

2. FW-Central Pine Barrens quality criteria:

i. Quality criteria for FW-Central Pine Barrens may be found at subsection (e) of this subsection and shall not apply to:

(1) Discharges which emanate from individual on-site sewage disposal systems which systems were in existence or for which a building permit had been issued prior to January 23, 1978, provided that such existing systems were installed and are operating in conformance with N.J.S.A. 58:11-23 et seq., and all regulations adopted thereunder; and all other appropriate Federal, State and local laws. Furthermore, any water quality standards in existence prior to January 23, 1978, shall remain in effect for previously existing individual on-site disposal systems.

(2) Discharges from agricultural operations that were in existence prior to January 23, 1978, provided that such discharges are in compliance with existing best management practices or other existing Federal, State, or local laws. Nothing in this subsection shall be construed to limit the ability of the US EPA or the NJ DEP to require additional control measures in conformance with future regulations regarding soil conservation, pesticides, best management practices, or other future Federal, State, or local laws. Furthermore, any water quality standards in existence prior to January 23, 1978, shall remain in effect for previously existing agricultural discharges.

(3) All point source discharges permitted prior to January 23, 1978, by the US EPA through the issuance of a NPDES permit or by the NJ DEP through the issuance of State water pollution control permits, provided that such discharges are in compliance with all terms and conditions of the appropriate permit. Nothing in this subsection shall be construed to limit the ability of the US EPA or the NJ DEP to require:

(i) Technology based effluent control measures for classes of point sources, other than publicly owned treatment works, as may be required by Federal or State law;

(ii) Alternative effluent control strategies for publicly owned treatment works and other classes of point sources.

Furthermore, any water quality standards in existence prior to January 23, 1978, shall remain in effect for these existing point source discharges.

ii. Seasonal or other natural conditions may cause a deviation in the water quality criteria. These deviations must be considered, after consulting with the Department, in the design of any water resources project.

(d) Designated uses and quality criteria for FW-2 waters

1. Designated uses:

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

iii. The FW-2 classification is subdivided into three categories as follows:

- (1) FW-2 Trout Production
- (2) FW-2 Trout Maintenance
- (3) FW-2 Nontrout

2. FW-2 quality criteria: Quality criteria for FW-2 Trout Production, FW-2 Trout Maintenance, and FW-2 Nontrout are found at subsection (e) of this section.

(e) Surface Water Quality Criteria for Freshwater

(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW- Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
Antidegradation policy	Except for FW-Lower Mullica and Wading Rivers - Central Pine Barrens and FW-Central Pine Barrens, the antidegradation policy may supercede the water quality criteria found in this section ((7:9-4.6(e)).				
Floating, colloidal, color and settleable solids; petroleum hydrocarbons and other oils and grease	Allowing for natural conditions, 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 render the waters unsuitable for the designated uses. 2. For "Petroleum Hydrocarbons" the goal is none detectable utilizing the federal EPA-Environmental Monitoring and Support Laboratory Method (Freon Extractable-Silica Gel Absorption-Infrared Measurement); the present criteria, however, are those of paragraph 1. above.				
Turbidity (JTU)	Maximum of 20.0 at anytime	Maximum of 20.0 at anytime	Maximum 30-day average of 15 JTU, a maximum of 50 JTU at any time, unless exceeded due to natural conditions		
Suspended solids-non-filterable residue (mg/l)	Maximum of 40.0 at any time	Maximum of 40.0 at anytime	Maximum of 25.0 at anytime unless exceeded due to natural conditions		Maximum of 40.0 at any time unless exceeded due to natural conditions.
Taste and odor producing substances	Allowing for natural conditions, none offensive to humans or which would produce offensive taste or odors in water supplies and biota used for human consumption. None which would render the waters unsuitable for the designated uses.				
pH (Standard Units)	4.5-6.0 Natural conditions outside this range shall prevail.	3.5-5.5 Natural conditions outside this range shall prevail.	6.5-8.5 Natural conditions outside this range shall prevail.	6.5-8.5	6.5-8.5 Natural conditions outside this range shall prevail.

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(e) Surface Water Quality Criteria for Freshwater

(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW- Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
5 day Bio-chemical oxygen demand (mg/l)	Maximum of 5.0 at anytime	Maximum of 5.0 at anytime	Allowing for natural conditions none which would render the waters unsuitable for the designated uses.		
Dissolved oxygen	Not less than 85% saturation at anytime	Not less than 85% saturation at anytime	Not less than 7.0 mg/l at anytime	Streams: 24 hour average not less than 6.0 mg/l Not less than 5.0 mg/l at anytime. Lakes: In eutrophic lakes when stratification is present, not less than 4.0mg/l in or above the thermocline where water temperatures are below 22.2°C (72°F). At depths where the water is 22.2°C (72°F) or above 24 hour average not less than 6.0 mg/l and not less than 5.0 mg/l at anytime.	i. 24 hour average not less than 5.0 mg/l, but not less than 4.0 mg/l at anytime, except as noted in paragraph ii. (two) below. ii. Not less than 4.0 mg/l at anytime in the freshwater tidal portions of tributaries to the Delaware River, between Rancocas Creek and Big Timber Creek inclusive.

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(e) Surface Water Quality Criteria for Freshwater
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW-Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
Temperature and heat dissipation areas	Not to deviate more than 2.8°C (5.0°F) from ambient stream temperature.	Not to deviate more than 2.8°C (5.0°F) from ambient stream temperature.	Natural temperatures shall prevail except where properly treated wastewater effluents may be discharged. Where such discharges occur, stream temper- atures shall not deviate more than 0.6°C (1.0°F) from ambient stream temperature.	1. Streams: 1. No heat may be added which would cause temperatures to deviate more than 1.1°C(2°F) from ambient stream temperature or which would cause temp- eratures in excess of 20°C (68°F). The rate of temperature change in designated heat dis- sipation areas shall not cause mortality of fish. Temperatures shall be measured out- side of heat dissipation areas.	1. Streams: i. No thermal alterations which would cause temp- eratures to deviate more than 2.8°C (5.0°F) at anytime from ambient temperatures. No heat may be added which would cause temperatures to exceed 27.8°C (82°F) for small mouth bass or yellow perch waters or 30°C(86°F) for other nontrout waters. Temperatures shall be measured outside of heat dissipation areas. 2. Lakes: i. No thermal alterations of more than 1.7°C (3°F) in the epilim- nion of lakes and other standing waters. Tempera- tures shall be measured outside of heat dissipation areas. ii. 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 practices shall not be permitted.

(e) Surface Water Quality Criteria for Freshwater
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW- Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
Temperature and heat dis- sipation areas					3 i. Heat dissipation 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. ii. Streams: Heat dissipation areas shall be limited to no more than one-quarter (1/4) of the cross section and/or volume of flow of the body of water, leaving at least three-quarter (3/4) free as a zone of passage including a minimum of one-third (1/3) surface measured from shore to shore at any flow. These limitations may be exceeded by special permission, on a case-by- case basis, when the applicant can demonstrate that a larger heat dissipation area will provide for passage of free-swimming and drifting organisms and not become injurious to or impair designated uses. iii. Lakes, ponds, or reservoirs: Heat dissipation areas will be developed on a case-by-case basis and will provide for passage of free-swimming and drifting organisms and not become injurious to or impair design- ated uses.

(e) Surface Water Quality Criteria for Freshwater

(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW- Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
					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.

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(e) Surface Water Quality for Freshwater

(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW- Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
Bacterial quality (MPN/100 ml)	1. Except as noted in paragraph two below, fecal coliform levels shall not exceed a geometric average of 200/100 ml., nor should more than 10 percent of the total samples taken during any 30-day period exceed 400/100 ml. 2. Fecal coliform levels shall not exceed a geometric average of 770/100 ml. in the freshwater tidal portion of tributaries to the Delaware River, between Rancocas Creek and Big Timber Creek inclusive. 3. 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. As a guideline and for the purpose of these regulations, a minimum of five samples taken over a 30-day period should be collected, however, the number of samples, frequencies and locations will be determined by the department in any particular case.				
Radioactivity	Prevailing regulations adopted by the U.S. Environmental Protection Agency pursuant to Sections 1412, 1445, and 1450 of the Public Health Services Act, as amended by the Safe Drinking Water Act (PL 93-523).				
Total dissolved solids - filterable residue (mg/l)	Maximum of 100 at anytime	Maximum of 100 at anytime	1. Not to exceed 500 mg/l or 133% of background whichever is less. 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 water supplies. 2. Any authorization by the department of such increases shall be conditioned upon utilization of the maximum practicable control technology.		

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(e) Surface Water Quality Criteria for Freshwater
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW-Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
Chloride (mg/l)			Maximum of 250.0 at anytime.	Maximum of 250.0 at anytime.	Maximum of 250.0 at anytime.
Sulfate (mg/l)			Maximum of 250.0 at anytime.	Maximum of 250.0 at anytime.	Maximum of 250.0 at anytime.
Nitrate nitrogen (mg/l)	Maximum of 3.0 at anytime.	Maximum of 2.0 at anytime.	Allowing for natural conditions none which would render the waters unsuitable for the designated uses.		
Phosphorus (mg/l)	Maximum of 0.7 at anytime - phosphorus as phosphate.		1. Lakes: Phosphorus as total P shall not exceed 0.05 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. 2. Streams: Phosphorus as total P shall not exceed 0.1 in any stream, except at those locations in paragraph one above, where total P is determined to have a detrimental effect on stream use or to be the limiting factor considering the morphological, physical, chemical, and other characteristics of the water body.		

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(e) Surface Water Quality Criteria for Freshwater
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW-Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
Toxic or hazardous substances	1. Allowing for natural conditions, 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. 2. The concentration of a nonpersistent or noncumulative toxic or hazardous substance in the State's waters shall not exceed one-twentieth (0.05) of the 96 hour LC50 value, as determined by appropriate bioassays. 3. The concentration of a persistent or cumulative toxic or hazardous substance in the State's waters shall not exceed one one-hundredth (0.01) of the 96 hour LC50 value, as determined by appropriate bioassays. 4. QUALITY CRITERIA FOR WATER (United States Environmental Protection Agency, 1976) WATER QUALITY CRITERIA 1972 (National Academy of Sciences, National Academy of Engineering, March 1973, EPA-R 3-73-033), other water quality criteria information published pursuant to Section 304(a) of the Clean Water Act of 1977, or other scientific information shall be used for recommending toxicity levels of pollutants which may affect designated uses.				
Ammonia (un-ionized; Maximum concentrations)	20.0	20.0	20.0	20.0	20.0

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(e) Surface Water Quality Criteria for Freshwater

(Concentrations are in micrograms per liter unless otherwise noted)

Substance	FW-Lower Mullica and Wading Rivers Central Pine Barrens	FW-Central Pine Barrens	FW-2-Trout Production	FW-2-Trout Maintenance	FW-2-Nontrout
Aldrin/dieldrin (Maximum concentrations)	0.003	0.003	0.003	0.003	0.003
Benzidine (Maximum concentrations)	0.1	0.1	0.1	0.1	0.1
DDT and metabolites (Maximum concentrations)	0.001	0.001	0.001	0.001	0.001
Endrin (Maximum concentrations)	0.004	0.004	0.004	0.004	0.004
Polychlorinated biphenyls (PCB) (Maximum concentrations)	0.001	0.001	0.001	0.001	0.001
Total residual chlorine (TRC) (Maximum concentrations)	3.0	3.0	3.0	3.0	3.0
Toxaphene (Maximum concentrations)	0.005	0.005	0.005	0.005	0.005

7:9-4.7 Tidal surface water designated uses and quality criteria

(a) Designated uses and quality criteria for TW-1 waters

1. Designated uses:

- These waters shall be suitable for shellfish harvesting where permitted.
- 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. Quality criteria: Quality criteria for TW-1 waters are found at subsection (e) of this section. Where trout are considered to be an important species in waters classified as TW-1, the quality criteria for FW-2 Trout Maintenance (which are found at subsection (e) of section six of this subchapter) shall apply.

(b) Designated use and quality criteria for TW-2 waters

- Designated uses: These waters shall 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.
- Quality criteria: Quality criteria for TW-2 waters are found at section 7:9-4.7 (e).

(c) Designated uses and quality criteria for TW-3 waters

- Designated uses: Tidal waters shall be suitable for secondary contact recreation; the maintenance of fish populations; the migration of anadromous fish; the maintenance of wildlife and other reasonable uses.
- Quality criteria: Quality criteria for TW-3 waters are found at section 7:9-4.7 (e).

(e) Surface water quality criteria for tidal waters
(All concentrations are in micrograms per liter unless otherwise noted)

Substance	TW-1	TW-2	TW-3
Antidegradation policy	The antidegradation policy may supercede water quality criteria found in this section [(7:9-4.7(e))].		
Floating, colloidal, color, settleable, and suspended solids (non-filterable residue); petroleum hydrocarbons and other oils and greases	1. Allowing for natural conditions, 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 water unsuitable for the designated uses. 2. For "Petroleum Hydrocarbons" the goal is none detectable utilizing the Federal-Environmental Monitoring and Support Laboratory Method (Freon Extractable-Silica Gel Adsorption-Infrared Measurement); the present criteria, however, are those of paragraph 1 above.		
Turbidity (Jackson Turbidity Unit-JTU)	Maximum 30-day average of 10 JTU, a maximum of 30 JTU at any time, unless exceeded due to natural conditions.		Maximum 30-day average of 15 JTU, a maximum of 50 JTU at any time, unless exceeded due to natural conditions.
Taste and odor producing substances	None offensive to humans or which would produce offensive taste or odors in biota used for human consumption. None which would render the waters unsuitable for human consumption.		
pH (Standard Units)	6.5-8.5 Natural conditions outside this range shall prevail.	6.5-8.5 Natural conditions outside this range shall prevail.	6.5-8.5 Natural conditions outside this range shall prevail.
Dissolved oxygen (mg/l)	24 hour average not less than 5.0. Not less than 4.0 at anytime unless due solely to natural conditions.	Not less than 4.0 at anytime unless due solely to natural conditions.	Not less than 3.0 at anytime

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(e) Surface water quality criteria for tidal waters
(All concentrations are in micrograms per liter unless otherwise noted)

Substance	TW-1	TW-2	TW-3
Temperature and heat dissipation areas	1. No heat shall be added which would cause temperatures to deviate from ambient stream temperatures by more than 2.2°C (4°F) during September through May, nor more than 0.8°C (1.5°F) during June through August, nor shall temperatures exceed 29.4°C (85°F). i. The only temperature criterion which will apply to Morses Creek (Linden) is that water temperature shall not be greater than 32.2°C (90°F) at anytime. 2. Temperatures shall be measured outside of designated heat dissipation areas. i. For Morses Creek (Linden) the temperature standard (see 1i above) shall be measured at number one Dam (where Kohler Way crosses Morses Creek). 3. Heat dissipation area determinations: The determination of designated heat dissipation areas in estuarine and bay waters, shall take into 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: i. Estuarine waters - Heat dissipation areas shall be limited to no more than one-quarter (1/4) of the cross-sectional area and/or volume of flow of the body of water, leaving at least three-quarter (3/4) free as a zone of passage including a minimum of one-third (1/3) the surface measured from shore to shore at any stage of tide. These limitations may be exceeded by special permission, on a case-by-case basis, when the applicant can demonstrate that a larger heat dissipation area will provide for passage of free-swimming and drifting organisms and not become injurious to or impair designated uses. ii. Bay waters - Heat dissipation areas will be developed on a case-by-case basis and will provide for passage of free-swimming and drifting organisms and not become injurious to or impair designated uses.		

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(e) Surface water quality criteria for tidal waters
(All concentrations are in micrograms per liter unless otherwise noted)

Substance	TW-1	TW-2	TW-3
	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.		

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(e) Surface water quality criteria for tidal waters
(All concentrations are in micrograms per liter unless otherwise noted)

Substance	TW-1	TW-2	TW-3
Radioactivity	Prevailing regulations adopted by the U.S. Environmental Protection Agency pursuant to sections 1412, 1445, and 1450 of the Public Health Services Act, as amended by the Safe Drinking Water Act (PL 93-523).		
Bacterial quality	1. Approved shellfish harvesting waters: where shellfish harvesting is permitted, requirements established by the National Shellfish Sanitation Program as set forth in its current manual of operation shall apply. 2. All other waters: Fecal coliform levels shall not exceed a geometric average of 200/100 ml, nor should more than 10 percent of the total samples taken during any 30-day period exceed 400/100 ml. 3. 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. As a guideline and for the purpose of these regulations, a minimum of five samples taken over a 30-day period should be collected, however, the number of samples, frequencies, and locations will be determined by the department in any particular case.	Fecal coliform levels shall not exceed a geometric average of 770/100 ml.	Fecal coliform levels shall not exceed a geometric average of 1500/100 ml.
Total dissolved solids - Filterable residue (mg/l)	None which would render the water unsuitable for the designated uses.		

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(e) Surface water quality criteria for tidal waters
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	TW-1	TW-2	TW-3
Toxic or hazardous substances	1. Allowing for natural conditions, 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. 2. The concentration of a nonpersistent or noncumulative toxic or hazardous substance in the State's waters shall not exceed one-twentieth (0.05) of the 96 hour LC50 value, as determined by appropriate bioassays. 3. The concentration of a persistent or cumulative toxic or hazardous substance in the State's waters shall not exceed one one-hundredth (0.01) of the 96 hour LC50 value, as determined by appropriate bioassays. 4. QUALITY CRITERIA FOR WATER (United States Environmental Protection Agency, 1976), WATER QUALITY CRITERIA 1972 (National Academy of Sciences, National Academy of Engineering, March 1973, EPA-R3-73-033), other water quality criteria information published pursuant to Section 304(a) of the Clean Water Act of 1977, or other scientific information, shall be used for recommending toxicity levels of pollutants which may affect designated uses.		
Aldrin/dieldrin (Maximum concentration)	0.003	0.003	0.003
Benzidine (Maximum concentration)	0.1	0.1	0.1
DDT and metabolites (Maximum concentration)	0.001	0.001	0.001
Endrin (Maximum concentration)	0.004	0.004	0.004
Polychlorinated biphenyls (PCB) (Maximum concentration)	0.001	0.001	0.001

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(e) Surface water quality criteria for tidal waters
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	TW-1	TW-2	TW-3
Total residual chlorine (TRC) (Maximum concentration)	10.0	10.0	10.0
Toxaphene (Maximum concentration)	0.005	0.005	0.005
Ammonia (un-ionized) (Maximum concentration)	0.196 hr LC50	0.196 hr LC50	0.196 hr LC50

7:9-4.8 Coastal surface water designated uses and quality criteria

(a) Designated uses and quality criteria for CW-1 waters are:

1. Designated uses: 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 shall be suitable for shellfish harvesting where permitted, for primary contact recreation; the maintenance, migration and propagation of the natural and established biota; and any other reasonable uses.

2. Quality criteria: Quality criteria for CW-1 waters are found at subsection (c) of this section.

(b) Designated uses and quality criteria for CW-2 waters are:

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

2. Quality criteria: Quality criteria for CW-2 waters for found at subsection (c) of this section.

(c) Surface water quality criteria for coastal waters
(All concentrations are in micrograms per liter unless otherwise noted)

Substance	CW-1	CW-2
Antidegradation policy	The antidegradation policy may supercede the water quality criteria found in this section (7:9-4.8(c))	The antidegradation policy may supercede the water quality criteria found in this section (7:9-4.8(c))
Floating, colloidal, color, suspended (filterable residue) 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.	1. Allowing for natural conditions, none noticeable in the water or deposited and settleable solids; petroleum hydrocarbons and other oils and greases	1. Allowing for natural conditions, none noticeable in the water or deposited and settleable solids; petroleum hydrocarbons and other oils and greases
Turbidity (Jackson Turbidity Unit-JTU)	Levels shall not exceed 10.0.	Levels shall not exceed 10.0.
Taste and odor producing substances	None offensive to humans or which would produce offensive taste or odors in biota used for human consumption. None which would render the waters unsuitable for human consumption.	None offensive to humans or which would produce offensive taste or odors in biota used for human consumption. None which would render the waters unsuitable for human consumption.
pH(Standard Units)	Natural pH conditions shall prevail.	Natural pH conditions shall prevail.
Dissolved oxygen(mg/l)	Not less than 5.0 at anytime unless due solely to natural conditions.	Not less than 5.0 at anytime unless due solely to natural conditions.

2. For "Petroleum Hydrocarbons" the goal is none detectable utilizing the Federal EPA Environmental Monitoring and Support Laboratory Method (Freon Extractable - Silica Gel Adsorption - Infrared Measurement); the present criteria, however, are those of paragraph 1. above.

(c) Surface water quality criteria for coastal waters
(All concentrations are in micrograms per liter unless otherwise noted)

Substance	CW-1	CW-2
Temperature and heat dissipation areas	No heat may be added directly to these waters. As a result of any heat which may be added elsewhere, the temperature shall not deviate from ambient stream temperatures by more than 2.2°C (4°F) during September through May, nor more than 0.8°C (1.5°F) during June through August, nor shall temperatures exceed 26.7°C (80°F).	1. No heat may be added which would cause temperatures to deviate from ambient stream temperatures by more than 2.2°C (4°F) during September through May, nor more than 0.8°C (1.5°F) during June through August, nor shall temperatures exceed 26.7°C (80°F). 2. Temperatures shall be measured outside of designated heat dissipation areas. 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 described 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.

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(c) Surface water quality criteria for coastal waters
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	CW-1	CW-2
Radioactivity	Prevailing regulations adopted by the U.S. Environmental Protection Agency pursuant to Sections 1412, 1445, and 1450 of the Public Health Services Act, as amended by the Safe Drinking Water Act (PL 93-523).	
Bacterial quality (MPN/100 ml)	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. 3. 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. As a guideline and for the purpose of these regulations, a minimum of five samples taken over a 30-day period should be collected, however, the number of samples, frequencies and locations will be determined by the department in any particular case.	2. All other waters: Fecal coliform levels shall not exceed a geometric average of 200/100 ml nor should more than 10 percent of the total samples taken during any 30-day period exceed 400/100 ml.

(c) Surface water quality criteria for coastal waters
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	CW-1	CW-2
Toxic or hazardous substances	1. Allowing for natural conditions, 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. 2. The concentration of a nonpersistent or noncumulative toxic or hazardous substance in the State's waters shall not exceed one-twentieth (0.05) of the 96 hour LC50 value, as determined by appropriate bioassays. 3. The concentration of a persistent or cumulative toxic or hazardous substance in the State's waters shall not exceed one one-hundredth (0.01) of the 96 hour LC50 value, as determined by appropriate bioassays. 4. QUALITY CRITERIA FOR WATER (United States Environmental Protection Agency, 1976), WATER QUALITY CRITERIA 1972 (National Academy of Sciences, National Academy of Engineering, March 1973, EPA-R3-73-033), other water quality criteria information published pursuant to Section 304(a) of the Clean Water Act of 1977, or other scientific information, shall be used for recommending toxicity levels of pollutants which may affect designated uses.	
Aldrin/dieldrin (Maximum concentration)	0.003	0.003
Benzidene (Maximum concentration)	0.1	0.1
DDT and metabolites (Maximum concentration)	0.001	0.001

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(c) Surface water quality criteria for coastal waters
(Concentrations are in micrograms per liter unless otherwise noted)

Substance	CW-1	CW-2
Endrin (Maximum concentration)	0.004	0.004
Polychlorinated biphenyls (PCB) (Maximum concentration)	0.001	0.001
Total residual chlorine (TRC) (Maximum concentration)	10.0	10.0
Toxaphene (Maximum concentration)	0.005	0.005
Ammonia (un-ionized)	0.196 hr LC50	0.196 hr LC50

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7:9-4.9 DESIGNATED USES AND QUALITY CRITERIA
MAINSTEM DELAWARE RIVER AND DELAWARE BAY

7:9-4.9 Designated Uses And Quality Criteria Mainstem Delaware River And Delaware Bay

(a) Designated uses and quality criteria for Zone 1 are

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 quality 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 water 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 for 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 quality 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 water 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 extent 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.

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(c) Designated uses and quality criteria for 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 quality 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 water 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 extent 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.

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(d) Designated uses and quality criteria for 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 quality 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 water 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 extent 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.

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(e) Designated uses and quality criteria for Zone 5 are:

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 quality 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 water 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.

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(f) Designated uses and quality criteria for 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 quality 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 water 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.

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7:9-4.10 Surface Water Classification

(a) The surface water classifications for Central Pine Barrens are:

1. Class FW-Central Pine Barrens is described as follows:

i. Mullica River Watershed

(1) Mullica River and tributaries upstream from Seventh Avenue, Sweetwater, Atlantic County (head of tide), except those designated FW-1.

(2) Freshwater segments of tributaries to the Mullica River between head of tide and Lower Bank Road bridge at Lower Bank, except those designated FW-1.

(3) Wading River and tributaries upstream from Charcoal Landing, Burlington County (head of tide), except those designated FW-1.

(A) Freshwater segments of tributaries to the Wading River between head of tide and Route 542 bridge.

(B) Freshwater segment of Ives Branch and its tributaries from the 10 foot contour.

(4) West Branch Bass River and tributaries upstream from the Bass River State Forest boundary (where it crosses the West Branch Bass River, downstream of Stage Road), except those designated FW-1.

(5) East Branch Bass River and tributaries upstream from the Bass River State Forest boundary (where it crosses the East Branch Bass River, downstream of Stage Road), except those designated FW-1.

(6) Indian Cabin Creek and tributaries upstream from Egg Harbor City Lake.

ii. Cedar Creek (Lacey Twp.) and tributaries upstream of Route 9 (head of tide) surrounded by the northern ridgeline; and the southern ridgeline west of the Garden State Parkway and the southern ridgeline (between the Garden State Parkway and Route 9) as defined by Lacey Road, Manchester Avenue, and Haines Road.

iii. All fresh waters west of the Garden State Parkway bounded by the Mullica and Cedar Creek (Lacey Township) watersheds, except those designated FW-1.

iv. Toms River Watershed:

(1) Davenport Branch and tributaries upstream from Route 530.

(2) Unnamed tributary to Michaels Branch through Keswick Grove and tributaries upstream from the east crossing of the Penn Central Railroad to source.

v. Rancocas Creek Watershed:

- (1) South Branch Rancocas Creek and tributaries upstream from Route 206 to source, except those designated FW-1.
- (2) Jade Run and tributaries upstream from Route 206, except those designated FW-1.
- (3) Mt. Misery Brook and tributaries upstream of the western intersection of the Lebanon State Forest boundary at Mt. Misery, except those designated FW-1.
- (4) Tributaries to Pole Bridge Branch upstream of the Penn Central Railroad.

vi. Those surface waters that flow through State and National parks, forests, and fish and wildlife lands.

- (1) Greenwood Branch and tributaries within the boundaries of Greenwood Rancocas Reserve and Lebanon State Forest.
- (2) Tributaries to Country Lake, Mirror Lake and Hanover Lake within the boundaries of the Whitesbog Fish and Wildlife Management Area and Lebanon State Forest.
- (3) All surface waters within the Wharton Tract State Forest
- (4) All surface waters within the following portions of the Bass River State Forest:
 - (A) That portion located on the New Gretna and Oswego Lake USGS Quadrangle Maps which is uninterrupted by private lands and contiguous to the Ives Branch and Bartletts Branch watersheds lying both north and south of Stage Road.
 - (B) That portion located on the New Gretna USGS Quadrangle Map which is uninterrupted by private lands and contiguous to and lying to the south of Stage Road.
 - (C) That portion located on the New Gretna and Oswego Lake USGS Quadrangle Maps which is uninterrupted by private lands and contiguous to and lying to the southeast of the Garden State Parkway.

2. Class FW-Lower Mullica and Wading Rivers - Central Pine Barrens is described as follows:

- i. Mullica River and tidal portions of its tributaries, from head of tide to Lower Bank Road Bridge at Lower Bank.
- ii. Wading River and tidal portions of its tributaries, from head of tide to Route 542 Bridge.

(b) Atlantic Coastal Plain Classifications are:

1. Class FW-1 Note: (All boundaries referred to in i. through vii. as they existed at the time of adoption of these classifications).

(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)

Westerly tributary to the Howardsville Cranberry Bog Reservoir and tributaries situated wholly within the Greenwood Forest Tract boundaries.

(Barnegat Bay Watershed)

All the fresh water ponds on Island Beach State Park.

- iv. Island Beach State Park

v. Bass River
State Forest

(Bass River Watershed)

- (1) Tommy's Branch from its headwaters downstream to 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) Brooks and tributaries to Batsto River 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-Central Pine Barrens (See subsection (a) of this section)

3. Class FW-2 Trout Production:
None

4. Class FW-2 Trout Maintenance:

- i. Shark River and tributaries from Route 33 bridge downstream to Brighton Avenue Bridge in Glendola.

(Metedeconk River Watershed)

- ii. Metedeconk River N/Br. (Lakewood) and tributaries from Farmingdale Road downstream to Lanes Mills.

- iii. Muddy Ford Brook (Larrabee's Crossing) and tributaries entire length.

- iv. Titmouse Brook and tributaries, entire length.

(Manasquan River Watershed)

- v. Manasquan River and tributaries from Rt. 9 bridge downstream to the "Narrows" in the vicinity of the Meadows Marina except those designated FW-1.

- vi. Mingamahone Brook (Farmingdale) and tributaries entire length, except those classified FW-1.

(Toms River Watershed)

- vii. Toms River and tributaries from Rt. 528 bridge downstream to Rt. 547 bridge in Whitesville.

5. Class FW-2 Nontrout:

- 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 Route 33 bridge.*

* Potable Water Supply

- 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 Route 9.*
 - v. Absecon Creek and tributaries upstream from Atlantic City Reservoir Dam in the City of Absecon.*
 - vi. All other fresh nontidal and fresh tidal water basins or portions thereof in the Coastal Plain except those designated as FW-1, FW-Central Pine Barrens, and FW-2 Trout Maintenance.
6. Class FW-Lower Mullica and Wading Rivers - Central Pine Barrens (See subsection (a) of this section).
7. Class TW-1:
- i. All tidal waters of Shark River and tributaries from head of saline influence downstream to surf waters.
 - ii. All tidal waters of Jumping Brook and tributaries downstream from head of saline influence downstream to Shark River and to surf waters.
 - iii. All tidal waters of the Manasquan River and tributaries downstream from two miles east of the Garden State Parkway to surf waters.
 - iv. All tidal waters situated wholly within Port Republic Fish and Wildlife Management Area.
 - v. All tidal waters situated wholly within Brigantine Wildlife Refuge.
 - vi. All other tidal waters of the Plain downstream from the head of tide to surf waters except those designated FW-Lower Mullica and Wading Rivers - Central Pine Barrens.
8. Class TW-2:
- None
9. Class TW-3:
- None

* Potable Water Supply

11. 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.

12. Class CW-2:

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

(c) Delaware River Basin Classifications are:

Note: Classifications of the Delaware River and Delaware Bay are contained in section 9 of this subchapter.

1. Class FW-1: Note: (All boundaries of State or National lands referred to in i. through ix. as they existed at the time of adoption of these classifications).
- (Clove Brook Watershed)
- i. High Point State Park
- (1) The second and third northerly tributaries to Clove Brook, tributaries to Steenykill Lake, and tributaries downstream of Stennykill Lake to their confluence with Clove Brook or the High Point State Park boundaries which originate in High Point State Park.
- (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.*
- (Flat Brook 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 1-9 below, which are classified elsewhere.*
- (1) Saw Mill Pond and Big Flat Brook downstream.
- (2) Mashipacong Pond and its outlet stream (Parker Brook) to its confluence with the Big Flat Brook.
- (3) Lake Wapalanne and its outlet stream to its confluence with the Big Flat Brook.

* Potable Water Supply

- (4) Lake Ocquittunk and waters connecting it with the Big Flat Brook.
- (5) Stony Lake and its outlet stream (Stony Brook) downstream to its confluence with the Big Flat Brook.
- (6) 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 Flat Brook.
- (7) 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 Flat Brook.
- (8) Lake Shawanni and its outlet stream to its confluence with the Big Flat Brook.
- (9) Crigger Brook and tributary to its confluence with the Big Flat Brook.

(Flat Brook Watershed)

- iv. Fish and Game Tracts
- (1) Tributary to the Little Flat Brook 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 Flat Brook originating along Struble Road in Stokes State Forest downstream to their confluence with the Big Flat Brook on Fish and Game property boundaries.*
- v. Worthington Tract
- (Dunnfield Creek Watershed)
- Sunfish pond, its outlet stream to the Delaware River, and all unnamed waters situated wholly within the Worthington Tract Boundaries.
- (Pequest Watershed)
- vi. (Wittingham Tract) Northwesterly tributaries to the

* Potable Water Supply

- Pequest including Big Spring within the Wittingham Tract (south-west of Springdale) boundaries from their origin to their confluence with the Pequest River.*
- vii. Johnsonburg Tract Mud Pond and outlet stream down to the Erie-Lakawanna Railroad trestle north of Johnsonburg.*
- viii. Allamuchy State Park All tributaries located wholly within the Allamuchy State Park and which flow into Allamuchy Pond.*
(Musconetcong Watershed)
- ix. Allamuchy State Park All those tributaries to Deer Park Pond and to its outlet stream located wholly within Allamuchy State Park.*
(Steele Run Watershed)
- x. Washington Crossing State Park That portion of Steele Run in Washington Crossing State Park, located upstream of New Jersey Route 29.*
(Crosswicks Creek Watershed)
- xi. 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)
- xii. 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.*

* Potable Water Supply

- (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)
- xiii. 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)
- xiv. Glassboro Fish & Game Tract That tributary to the Branch of Little East Run having its confluence just south of Stangor Avenue. First and second easterly tributaries to Little East Run north of Academy Avenue.
- xv. 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.
- xvi. Peaselee Fish & Game Tract (1) Middle Branch of Muskee Creek from its origin to the Peaselee Tract boundaries.
(2) Cedar Branch of the Manumuski River from its origin to the Peaselee Tract boundaries.
(3) Those portions of tributaries to Slab Branch situated wholly within the Peaselee Fish and Game Tract boundaries.
(Nantuxent Creek Watershed)
- xvii. Millville Fish & Game Tract Cedar and Mile Branches to Shaw's Mill Pond.

- (Dividing Creek Watershed)
- xviii. 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)
- xix. Dix Fish & Game Tract
- All fresh waters arising in and situated wholly within the Dix Tract boundaries.
- (West Creek Watershed)
- xx. 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.
 - (3) Those tributaries to West Creek which originate approximately 0.5 miles upstream of Hoffman's Mill and which are located wholly within the Belleplaine State Forest boundaries.
- (East Creek Watershed)
- xxi. 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 Belleplaine State Forest boundaries.
- xxii. 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 Kittatiny Ridge and situated wholly within the proposed DWGNRA boundaries.*
 - (3) Rundle Brook upstream of Flatbrook Road.*
 - (4) Smith Ferry Brook.*
 - (5) Donkey's Corner Brook*
 - (6) Sambo Island Brook and Pond.*
 - (7) Coppermine Brook in Pahaquarry.*
 - (8) Dunnfield Creek to Route I-80.*
2. Class FW- Central Pine Barrens (See subsection (a) of this section).
 3. Class FW-2 Trout Production:
 - (Delaware River Tributaries (Sussex County))
 - i. Mill Brook (Montague) and tributaries entire length except those reaches designated FW-1.*
 - ii. Sandyston Creek (Sandyston) and tributaries entire length.*
 - iii. Shimers Brook (Millville) and tributaries entire length, except those reaches designated FW-1*.
 - iv. White Brook (Montague) and tributaries entire length.*
 - (Delaware River Tributaries (Warren County))
 - v. Buckhorn Creek (Hutchinson) and tributaries entire length.*
 - vi. Dunnfield Creek (Del. Water Gap) and tributaries except those reaches designated FW-1.*

* Potable Water Supply

- vii. Lomisons Glen Brook (Lomisons Glen) and tributaries entire length.*
- viii. Van Campens Brook (Millbrook) and tributaries entire length except those parts designated FW-1.*

(Flat Brook Watershed)

- ix. Beer's Creek (Shaytown) and tributaries entire length.*
- x. Big Flat Brook and tributaries from confluence with Parker Brook downstream to and including Blewitt Tract, except those designated FW-1.*
- xi. Parker Brook (Montague) and tributaries entire length, except those reaches designated FW-1.*
- xii. Shawanni Creek (Walpack) and tributaries entire length.*
- xiii. Stony Brook (Stokes S.F.) and tributaries entire length.*
- xiv. Tillman Brook (Walpack) and tributaries entire length.*
- xv. Tuttles Corner Brook (Tuttles Corner) and tributaries entire length.*

(Paulins Kill River Watershed)

- xvi. Paulins Kill East Branch and tributaries from Limecrest Quarry downstream to confluence with Paulins Kill West Branch.*
- xvii. Paulins Kill tributary (Emmens Station) and tributaries entire length.*
- xviii. Paulins Kill tributary (Fredon) and tributaries entire length.*
- xix. Yard's Creek and tributaries from Yard's Creek Reservoir downstream to Paulins Kill.*
- xx. Trout Brook (Middleville) and tributaries downstream of outflow to Swartswood Lake entire length.*

(Pequest River Watershed)

- xxi. Bear Brook (Johnsonburg) and tributaries entire length.*
- xxii. Furnace Brook (Oxford) and tributaries entire length.*
- xxiii. Independence Creek (Independence) and tributaries entire length.*
- xxiv. Trout Brook (Tranquility) and tributaries entire length.*

* Potable Water Supply

(Pohatcong Creek Watershed)

- xxv. Brass Castle Creek (Brass Castle) and tributaries entire length.*
- xxvi. Merrill Brook (Harmony) and tributaries entire length.*
- xxvii. Mill Brook (Broadway) and tributaries entire length.*
- xxviii. Pohatcong Creek and tributaries upstream from Karrville Bridge.*

(Musconetcong River Watershed)

- xxix. Beatty's Brook (Penwell) and tributaries entire length.*
- xxx. Hances Brook (Rockport) and tributaries entire length.*
- xxxi. Musconetcong River (trib.) (Changewater) and tributaries entire length.*
- xxxii. Musconetcong River (trib.) (Franklin) and tributaries entire length.*
- xxxiii. Musconetcong River (trib.) (Rockport) and tributaries entire length.*
- xxxiv. Schooley's Mt. Brook (Schooley's Mt.) and tributaries entire length.*
- xxxv. Stephensburg Creek (Stephensburg) and tributaries entire length.*
- xxxvi. West Portal Brook (West Portal) and tributaries entire length.*

(Delaware River Tributaries (Hunterdon County))

- xxxvii. Tributary to Delaware River south of Reigelsville and tributaries entire length.*
- xxxviii. Little York Brook (Little York) and tributaries entire length.*
- xxxix. Spring Mills Brook (Spring Mills) and tributaries upstream of Route 519 bridge, Spring Mills.*

* Potable Water Supply

4. Class FW-2 Trout Maintenance:

(Delaware River Tributaries (Sussex County))

- i. Lake Marcia and tributaries entire length.*
(Flat Brook Watershed)
- ii. Flat Brook and tributaries upstream from Delaware River except those parts designated FW-1, FW-2 Trout Production, Hainesville Pond (on Little Flat Brook); and FW-2 Nontrout.*
- iii. Stony Lake (Stokes State Forest) and tributaries.*
(Paulins Kill Watershed)
- iv. Blair Creek (Hardwick Center) and tributaries upstream from Paulins Kill River to, and including Bass Lake.*
- v. Alms House Brook (Andover) and tributaries upstream from, and including, County Farm Pond.*
- vi. Culver's Brook (Frankford), including Culver's Lake, and tributaries entire length.*
- vii. Jacksonburg Creek (Blairstown) and tributaries entire length.*
- viii. Paulins Creek (Paulins) and tributaries entire length.*
- ix. Paulins Kill River and tributaries from confluence of East Branch and West Branch downstream to Route 15 (Bench Mark 507) and from Paulins Kill Lake downstream to Delaware River except those reaches designated FW-1 and FW-2 Trout Production.*
- x. Swartswood Creek (Swartswood), including Swartswood Lake, and tributaries entire length.*
(Pequest River Watershed)
- xi. Andover Junction Brook (Andover) and tributaries entire length.*
- xii. Bear Creek (Johnsonburg) and tributaries entire length.*
- xiii. Beaver Brook (trib.) (Hope), entire length.*
- xiv. Brookaloo Swamp (Hope) and tributaries entire length.*

* Potable Water Supply

- xv. Honey Runn (Hope) and tributaries, entire length.*

- xvi. Mountain Lake Brook (Mt. Lake) and tributaries, including Mountain Lake, entire length.*

- xvii. New Wawayanda Lake (Andover).*

- xviii. Gardners Lake (Andover Twp.).*

- xix. Lake Illif (Andover Twp.).*

- xx. Pequest River and tributaries from source downstream to Tranquility Bridge and from Townsbury bridge to Delaware River, except those reaches designated FW-1 and FW-2 Trout Production.*

- xxi. Silver Lake and tributaries entire length.*

- xxii. Tar Hill Brook (Lake Lenape) and tributaries entire length.*

(Delaware River Tributaries (Warren County))

- xxiii. Delawanna Creek (Delaware) and tributaries entire length.*

- xxiv. Lopatcong Creek (Harkers Hollow) from source downstream to Route 22 bridge.*

- xxv. Pophandusing Creek (Belvidere) and tributaries entire length.*

(Pohatcong Creek Watershed)

- xxvi. Pohatcong Creek and tributaries from Karrville Bridge to Delaware River.*

(Musconetcong River Watershed)

- xxvii. Hatchery Brook (Hackettstown) and tributaries entire length.*

- xxviii. Lake Hopatcong and tributaries entire length.*

- xxvix. Lubbers Run (Byram) and tributaries entire length, including Lake Lackawanna.*

- xxx. Mine Brook (Mount Olive) and tributaries from source downstream to upper Mine Brook Reservoir.*

- xxxi. Musconetcong River and tributaries from Lake Hopatcong downstream to Delaware River except those reaches designated FW-2 Trout Production.*

* Potable Water Supply

- xxxii. Wills Brook (Mount Olive) and tributaries entire length.*
- xxxiii. Cranberry Lake (Bryam).
(Delaware River Tributaries (Hunterdon County))
- xxxiv. Alexauken Creek (Lambertville) and tributaries entire length.*
- xxxv. Hakiwokake Creek (Milford) and tributaries entire length, except those reaches classified FW-2 Trout Production.*
- xxxvi. Hariwokake Creek (Frenchtown) and tributaries from Everittstown-Milford Road bridge downstream to Delaware River.*
- xxxvii. Lockatong Creek (Raven Rock) and tributaries from Idell bridge downstream to Delaware River.*
- xxxviii. Plum Brook (Sergeantsville) and tributaries entire length.*
- xxxvix. Spring Mills Brook (Milford) and tributaries from Route 519 bridge at Spring Mill downstream to confluence with Hakiwokake Creek, except those reaches classified FW-2 Trout Production.*
- xL. Wichecheoke Creek (Stockton) and tributaries from confluence with Plum Brook downstream to Delaware River.*
(Delaware River Tributaries (Mercer County))
- xLi. Moore Creek (Hopewell) and tributaries entire length.*
(Assunpink Creek Watershed)
- xLii. Assunpink Creek (Lawrence) from Quaker Bridge downstream to Whitehead Mill Pond.*
- xLiii. Nishisakawick Creek (Frenchtown) and tributaries.

5. Class FW-2 Nontrout:

- i. The Delaware and Raritan Canal and tributaries.*
- ii. All tributaries to main stem, Delaware River, upstream from and including Big Timber Creek except those designated as FW-1, FW-Central Pine Barrens, FW-2 Trout Production and FW-2 Trout Maintenance.*

*Potable Water Supply

- iii. Laurel (Quinton) Lake and Elkinton Mill Pond, tributary to Alloways Creek upstream from their respective dams.*
- iv. All streams in Cape May County upstream from head of tide or tidal barriers thereon.*
- v. All fresh nontidal and fresh tidal tributaries to main stem, Delaware River, south of Big Timber Creek to Cape May County, except those mentioned in iii above.

6. Class TW-1:

Tidal tributaries to main stem, Delaware River and Delaware Bay south from and including Oldman's Creek.

7. Class TW-2:

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

8. Class TW-3:

None

* Potable Water Supply

(d) Hackensack River Basin Classifications

1. Class FW-1:
None
2. Class FW-2 Trout Production:
None
3. Class FW-2 Trout Maintenance:
None
4. Class FW-2 Nontrout:
 - i. Hackensack River Basin above Oradell Dam.*
 - ii. Overpeck Creek and tributaries to tide dam and fresh nontidal and fresh tidal portions of tributaries to Hackensack River downstream from Oradell Dam.
5. Class TW-1:
Hackensack River and all tidal portions of tributaries from Oradell Dam to confluence with Overpeck Creek.
6. 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.
7. Class TW-3:
Hackensack River main stem downstream of Berry's Creek.

* Potable Water Supply

(e) Hudson River, Kill Van Kull, Arthur Kill Basin Classifications

1. Class FW-1:
None
2. Class FW-2 Trout Production:
None
3. Class FW-2 Trout Maintenance:
None
4. Class FW-2 Nontrout:
 - i. Rahway River and tributaries above the Pennsylvania Railroad bridge.*
 - ii. Elizabeth River and tributaries above Broad Street Bridge, Elizabeth.
 - iii. Morse Creek and tributaries.
 - iv. Piles Creek and tributaries.
 - v. South Branch Rahway River to Hazelwood Avenue, Rahway.
 - vi. Smith Creek and tributaries.
 - vii. Woodbridge Creek and tributaries.
 - viii. All other fresh nontidal and fresh tidal waters not mentioned in this subsection.
5. Class TW-1:
None
6. 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 and tidal portions of the tributaries from Route 1-9 crossing upstream to the Pennsylvania Railroad bridge.

* Potable Water Supply

iv. Tidal portion of South Branch Rahway River to head of tide (Hazelwood Avenue, Rahway).

v. All other tidal waters not mentioned herein.

7. 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 Piles Creek.

v. Tidal portion of Rahway River from its mouth at the Arthur Kill to Route 1-9 crossing.

vi. Tidal portion of Smith Creek.

vii. Tidal portion of Woodbridge Creek.

(f) 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) Cedar Pond, Hanks Pond and all tributaries thereto.

(2) Tributary to Pequannock River at Green Pond Junction.

(3) Tributary to the Pequannock River joining the main stem 3500' + southeast of the Sussex-Passaic County line, in the vicinity of Jefferson.

(4) Pacack 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 Pacack 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 Trout Production:

- i. Bear Swamp Brook (Mahwah) and tributaries entire length.
- ii. Clove River (Mahwah) and tributaries entire length.
- iii. Clinton Brook (Newfoundland) and tributaries from Clinton Reservoir to Pequannock River.
- iv. Kanouse Brook (Newfoundland) and tributaries entire length.*
- v. Cooley Brook (West Milford) and tributaries except those reaches classified FW-1.
- vi. Green Brook (West Milford) and tributaries entire length, except those reaches classified FW-1.
- vii. Harmony Brook (Brookside) and tributaries entire length.
- viii. Hewitt Brook (West Milford) and tributaries entire length.
- ix. Jackson Brook (Mine Hill) and tributaries entire length.
- x. Pequannock River (trib.) (Jefferson) and tributaries entire length.
- xi. Saddle River and tributaries from Stateline downstream to Bergen County Rt. 2 bridge.
- xii. West Brook (West Milford) and tributaries entire length.
- xiii. Whippany River (Brookside) and tributaries from source downstream to Whitehead Rd. Bridge.

* Potable Water Supply

- xiv. Whippany River (trib.) (Randolph) and tributaries entire length.
- xvi. Mill Brook (Dover) and tributaries entire length.
- xvii. Pequannock River (Vernon) and tributaries from source downstream to confluence with Pacack Brook, except those segments designated FW-1.

3. Class FW-2 Trout Maintenance:

- i. Charlottesburg Reservoir and tributaries except those classified as FW-2 Trout Production.
- ii. Greenwood Lake and tributaries entire length.
- iii. Hibernia Brook (Hibernia) and tributaries entire length.
- iv. Green Pond (Rockaway Twp.)
- v. Jersey City Reservoir (Boonton)
- vi. Passaic River and tributaries from source downstream to Van Doren's Mill Pond.
- vii. Pequannock River and tributaries except those classified as FW-2 Trout Production from confluence with Pacack Brook downstream to Hamburg Turnpike in Bloomingdale.
- viii. Post Brook (Bloomingdale) and tributaries from source downstream to Wanaque Reservoir.
- ix. Primrose Brook (Harding) and tributaries from source downstream to Rt. 202 bridge.
- x. Oak Ridge Reservoir (Oak Ridge) and tributaries entire length, except those classified FW-1.
- xi. Russia Brook (Milton) and tributaries from Lake Hartung dam downstream to Lake Swannanoa.
- xii. Saddle River and tributaries from Bergen County Rt. 2 bridge downstream to Allendale Road bridge.
- xiii. Sheppard Lake and tributaries entire length.
- xiv. Wanaque Reservoir and tributaries entire length, other than those waters in subparagraph xvii of this paragraph.
- xv. Wanaque River and tributaries from Greenwood Lake to and including Wanaque Reservoir, except those reaches classified as FW-2 Trout Production.

* Potable Water Supply

- xvi. Clinton Reservoir (West Milford) and tributaries, except those waters classified FW-2 Trout Production.
- xvii. Canistear Reservoir and tributaries, except those waters classified FW-1.
- xviii. Split Rock Reservoir (Rockaway Twp.)

4. Class FW-2 Nontrout:

- 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, FW-2 Trout Production, and FW-2 Trout Maintenance.*
- ii. Saddle River and tributaries and Ho-Ho-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 except those designated FW-2 Trout Production and FW-2 Trout Maintenance.*
- iii. Saddle River from its confluence with Ho-Ho-Kus Brook downstream to head of saline influence, except those waters designated as FW-2 Trout Production and FW-2 Trout Maintenance.*
- iv. Haledon Reservoir and tributaries thereto.*
- v. Main stem and tributaries of Passaic River between Dundee Lake Dam and Passaic Valley Water Commission intake at the Little Falls.
- vi. Fresh nontidal and fresh tidal tributaries to the Passaic River, below Dundee Lake Dam.
- vii. Fresh nontidal and fresh tidal portions of Bound Creek and its tributaries.

5. Class TW-1:

None

6. 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.

* Potable Water Supply

7. 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.

(g) Raritan River Basin Including Raritan Bay - Sandy Hook Bay Classification

1. Class FW-1:

None

2. Class FW-2 Trout Production:

- i. Black Brook (Polktown) and tributaries entire length.
- ii. Burnett Brook (Ralston) and tributaries entire length.
- iii. Capoolong Creek (Sydney) and tributaries entire length.
- iv. Cold Brook (Oldwick) and tributaries entire length.
- v. Dawson's Brook (Ironia) and tributaries entire length.
- vi. Electric Brook (Schooley's Mt.) and tributaries from source downstream to Camp Washington Pond.
- vii. Flander's Brook (Flanders) and tributaries entire length.
- viii. Frog Hollow Brook (Califon) and tributaries entire length.
- ix. Gladstone Brook (St. Bernards) and tributaries entire length.
- x. Hacklebarney Brook (Hacklebarney) and tributaries entire length.
- xi. Hickory Run (Califon) and tributaries entire length.
- xii. Hollow Book (Pottersville) and tributaries entire length.
- xiii. India Brook and tributaries entire length.
- xiv. Lamington (Black) River and tributaries from Hacklebarney State Park downstream to Camp Brady Bridge, Bedminster.
- xv. Ledgewood Brook (Ledgewood) and tributaries entire length.
- xvi. Little Brook (Califon) and tributaries entire length.
- xvii. Lomerson Brook (Pottersville) and tributaries entire length.
- xviii. Mulhockaway Creek (Pattenburg) and tributaries entire length.
- xix. Norton Brook (Norton) and tributaries entire length.
- xx. Peapack Brook (Gladstone) and tributaries entire length.

- xi. Rockaway Creek (N. Br.) and tributaries from source downstream to Rt. 513 bridge.

- xxii. Stony Brook (Washington) and tributaries entire length.
- xxiii. Sun Valley Brook (Mt. Olive) and tributaries entire length.
- xxiv. Trout Brook (Hacklebarney) and tributaries entire length.
- xxv. Turkey Brook (Mt. Olive) and tributaries entire length.
- xxvi. Willoughby Brook (Buffalo Hollow) and tributaries entire length.
- xxvii. Spruce Run Creek (Glen Gardner) and tributaries entire length.

3. Class FW-2 Trout Maintenance:

- i. Beaver Brook (Cokesbury) and tributaries entire length.
- ii. Black (Lamington) River and tributaries from Rt. 206 to Hacklebarney State Park; Camp Brady Bridge to Rt. 523.
- iii. Green Brook (Watchung) and tributaries from source downstream to Rt. 22 bridge.
- iv. McVickers Brook (Mendham) and tributaries entire length.
- v. Middle Brook (Greater Cross Road) and tributaries entire length.
- vi. Middle Brook (E. Br.) (Springdale) and tributaries entire length.
- vii. Prescott Brook (Stanton Station) and tributaries entire length.*
- viii. Raritan River (N. Br.) and tributaries from source downstream to Rt. 512 bridge.*
- ix. Raritan River (S. Br.) and tributaries from confluence with Turkey Brook downstream to Packers Island.*
- x. Rockaway Creek (N. Br.) (Whitehouse) and tributaries from Rt. 513 bridge downstream to confluence with Rockaway Creek (S Br.)*
- xi. Rockaway Creek (S. Br.) (Whitehouse) and tributaries entire length.*

* Potable Water Supply

- xii. Round Valley Reservoir and tributaries entire length.*
- xiii. Spruce Run Reservoir and tributaries except those designated FW-2 Trout Production.*
(Navesink Watershed)
- xiv. Hockhocks Creek and tributaries entire length.
- xv. Pine Brook (Cooks Mills) and tributaries entire length.
- xvi. Ramanassen Brook (Holmdel) and tributaries, entire length.

4. Class FW-2 Nontrout:

- 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 except those designated FW-2 Trout Production and FW-2 Trout Maintenance.*
- 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 intake of the Sayreville Water Department.*
- 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, except those classified as FW-2 Trout Maintenance.*
- vii. The main stem of the Raritan River and all tributaries below the intake of the Elizabethtown Water Company to the Fieldsville Dam.
- viii. All other fresh nontidal and fresh tidal portions of tributaries to the Raritan River below Fieldsville Dam and to Raritan Bay - Sandy Hook Bay.
- ix. Tennent Brook and tributaries above the Tennent Pond Dam.*

5. Class TW-1:

- i. The mainstem of the Raritan River and tidal tributaries from Fieldsville Dam to the mouth of the Raritan River, except those portions classified as FW-2 Nontrout.

* Potable Water Supply

- 11. Raritan Bay - Sandy Hook Bay and all tidal tributaries exclusive of the Arthur Kill.

6. Class TW-2:

None

7. Class TW-3:

None

(h) Wallkill River Basin Classification

1. Class FW-1:

(Lake Lookout Brook Watershed)

- i. Newark City Holdings, and Wawayanda Tract Lake Lookout Brook and tributaries from its headwaters in the Newark City Holdings downstream through 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.

* Potable Water Supply

(Lake Rutherford Watershed)

- vii. Sussex Borough Water Supply

Lake Rutherford northwest of Colesville.*

(Clove River Watershed)

- viii. High Point State Park

Those portions of the 2 northernmost tributaries to Clove River 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 Trout Production:

Black Creek (trib.) (McAfee) and tributaries entire length.

3. Class FW-2 Trout Maintenance:

- i. Black Creek (McAfee) and tributaries from source downstream to confluence with Great George Brook, except those reaches designated FW-1 or FW-2 Trout Production.
- ii. Glenwood Brook (Glenwood) and tributaries entire length.
- iii. Lounsberry Hollow Brook (Vernon Valley) and tributaries entire length.
- iv. Wawayanda Lake and tributaries entire length, except those reaches designated FW-1.
- v. Clove River (Wantage) and tributaries from source downstream to Clove Acres Lake, except those designated FW-1.
- vi. Clove Creek (Colesville) and tributaries entire length.
- vii. Franklin Pond Creek (Franklin) and tributaries entire length, except those reaches designated FW-1.
- viii. Hamburg Creek (Hamburg Mts.) and tributaries entire length.
- ix. Papakating Creek (Frankford Plains) and tributaries from source downstream to Frankford Plains bridge.

* Potable Water Supply

- x. Sparta Glen Brook (Sparta) and tributaries entire length.
 - xi. Wallkill River and tributaries from source downstream to Rt. 23 bridge.
 - xii. Willow Brook (Wantage) and tributaries entire length.
4. Class FW-2 Nontrout:
- 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.*
 - iii. All other segments of the Wallkill River Basin except those designated as FW-1, FW-2 Trout Production and FW-2 Trout Maintenance.

* Potable Water Supply





