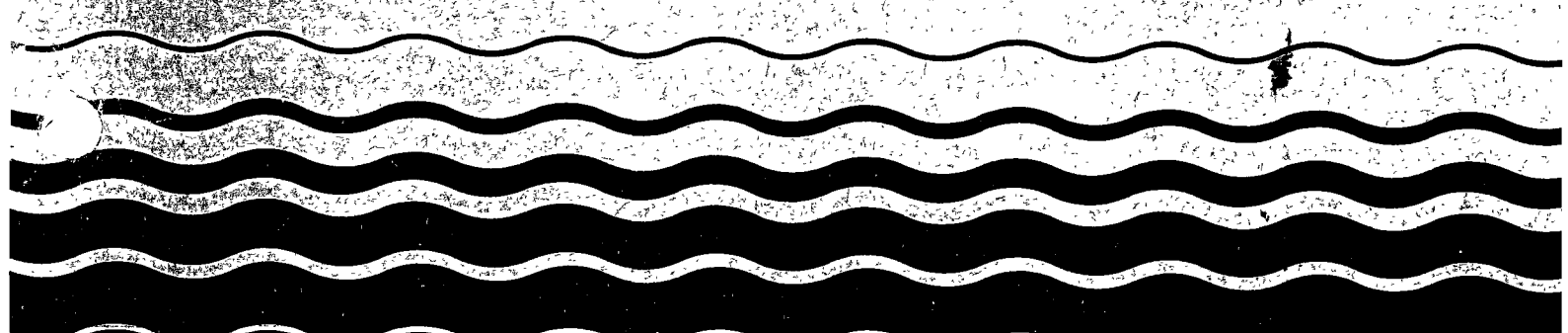


EPA

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Water Quality Standards Criteria Summaries: A Compilation of State/Federal Criteria

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The reader should consult the water quality standards of a particular State for exact regulatory language applicable to that State. Copies of State water quality standards may be obtained from the State's Water Pollution Control Agency or its equivalent.

Additional information may also be obtained from the:

Standards Branch
Criteria and Standards Division (WH-585)
Office of Water Regulations and Standards
U.S. Environmental Protection Agency
Washington, D.C. 20460
202-475-7315

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Springfield, Virginia 22161
703-487-4650

The NTIS order number is: PB89-141428.



INTRODUCTION

This digest is compiled to provide general information to the public as well as to Federal, State, and local officials. It contains excerpts from the individual Federal-State water quality standards establishing pollutant specific criteria for interstate surface waters. The water quality standards program is implemented by the U. S. Environmental Protection Agency where responsibility for providing water quality recommendations, approving State-adopted standards for interstate waters, evaluating adherence to the standards, and overseeing enforcement of standards compliance, has been mandated by Congress.

Standards, a nationwide strategy for surface water quality management, contain three major elements: the use (recreation, drinking water, fish and wildlife propagation, industrial, or agricultural) to be made of the navigable water; criteria to protect these uses; and an antidegradation statement to protect existing high quality waters, from degradation by the addition of pollutants. Guidance for the development of standards by individual States is contained in two EPA documents entitled Water Quality Standards Handbook (1983) and Quality Criteria for Water (1986).

General provisions in State water quality standards, which are the subject of this digest, were instituted as the fundamental basis on which water quality management in the States was initiated. The provisions, often referred to as "freedoms," are general and encompassing statements which provide for the aesthetic beauty of a waterway. They are not based on scientific rationale. The 1986 Quality Criteria for Water recommends the following aesthetic qualities criteria:

All waters free from substances attributable to wastewater or other discharges that:

- (1) settle to form objectionable deposits;
- (2) float as debris, scum, oil, or other matter to form nuisances;
- (3) produce objectionable color, odor, taste, or turbidity;
- (4) injure or are toxic or produce adverse physiological responses in humans, animals, or plants; and
- (5) produce undesirable or nuisance aquatic life.

Since water quality standards experience revisions and upgrading from time to time, following procedures set forth in the Clean Water Act, individual entries in this digest may be superseded. As these revisions are accomplished and allowing for the States to revise their standards accordingly, this digest will be updated and reissued. Because this publication is not intended for use other than as a general information resource, to obtain the latest information and for special purposes and standards, the reader needs to refer to the current approved water quality standards. These can be obtained from the State water pollution control agencies or the EPA or Regional Offices.



REFERENCES

- 5 California Water Quality Standards by River Basins, ca. 1975.
- 9 Florida Administrative Code, Chapter 17-4, 1987 and Florida Administrative Code, Chapter 17-3, 1988.
- 12 Idaho Department of Health and Welfare Rules and Regulations, Title 1, Chapter 2, "Water Quality Standards and Wastewater Treatment Requirements", 1980.
- 19 Maine Water Classification Program, Maine Revised Statutes Annotated, Title 38, Article 4-A, State of Maine Department of Environmental Protection, May, 1987.
- 31 Water Quality Standards for Interstate and Intrastate Streams in New Mexico, State of New Mexico Water Quality Control Commission, 1988.
- 35 Ohio Water Quality Standards, Chapter 3745-1 of the Administrative Code, Ohio Environmental Protection Agency, 1985.
- 43 Texas Surface Water Quality Standards, Texas Water Commission, Rule Change, 1988.
- 44 Utah Standards of Quality for Waters of the State, Wastewater Disposal Regulations: Part II, State of Utah Department of Health: Division of Environmental Health, 1988.
- 45 Vermont Water Quality Standards, State of Vermont Water Resource Board, 1987.
- 46 Virginia Water Quality Standards, State Water Control Board, 1987.
- 51 Water Quality Standards for American Samoa, 1984, p. 16-17.
- 53 Revised Guam Water Quality Standards, Guam Environmental Protection Agency 1984, p. 7.
- 56 Marine and Fresh Water Quality Standard Regulations, Trust Territory, 1986, p. 4-5.
- 57 Water Quality Standards for Coastal Waters of the Virgin Islands, Title 12, Chapter 7, Subchapter 186, 1985, p. 263.

ENVIRONMENT REPORTER, The Bureau of National Affairs, Inc. Washington, D.C.
20037

- 1 Page 701:1002, June 26, 1981
- 2 Pages 706:1004-1006, November 7, 1986
- 3 Page 711:1002, February 7, 1986

4 Page 716:1004, August 30, 1985
6 Pages 726:1005-1006, March 22, 1985
7 Page 731:1002, May 14, 1982
8 Page 736:1001, March 28, 1986
9 Pages 746:1010-1011, September 5, 1986
11 Page 756:1002, September 20, 1985
13 Page 766:0505, March 28, 1986
14 Page 771:1002, August 10, 1984
15 Page 776:1005, February 13, 1987
16 Page 781:1011, March 27, 1987
17 Page 786:1008, November 29, 1985
18 Page 791:1005, January 18, 1985
20 Page 801:1002, April 19, 1985
21 Page 806:1002, June 21, 1985
22 Page 811:1003, February 13, 1987
23 Page 816:1002, June 25, 1982
24 Page 821:1002, October 25, 1985
25 Page 826:1007, June 21, 1985
26 Page 831:1010, April 19, 1985
27 Pages 836:1003, 1006, March 27, 1987
28 Page 841:1013, February 22, 1985
29 Page 846:1007, October 5, 1984
30 Page 851:1004, April 11, 1986
32 Page 861:1007, November 29, 1985
33 Pages 866:1010-1012, August 29, 1986
34 Page 871:1002, June 7, 1985
36 Page 881:1014, September 26, 1986

38 Page 891:1004, August 9, 1985
39 Page 901:1001, August 9, 1985
40 Page 906:1004, January 17, 1986
41 Page 911:1003-1004, March 22, 1985
42 Pages 916:0541-0542, September 7, 1984
47 Page 941:1004, October 21, 1983
48 Page 946:1002, August 10, 1984
49 Pages 951:1001-1002, March, 13, 1987
50 Page 956:1004, July 5, 1985
52 Page 741:1002, March 28, 1986
55 Pages 896:1002-1003, December 23, 1983

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Alabama¹

A. State waters shall be free from substances attributable to sewage, industrial wastes or other wastes that will settle to form bottom deposits which are unsightly, putrescent or interfere directly or indirectly with any classified water use.

B. State waters shall be free from floating debris, oil, scum, and other floating materials attributable to sewage, industrial wastes or other wastes in amounts sufficient to be unsightly or interfere directly or indirectly with any classified water use.

C. State waters shall be free from substances attributable to sewage, industrial wastes or other wastes in concentrations or combinations which are toxic or harmful to human, animal or aquatic life to the extent commensurate with the designated usage of such waters.

Alaska²

The following standards apply to the drinking, culinary and food processing water supply:

Turbidity - Shall not exceed 5 NTU above natural conditions when the natural turbidity is 50 NTU or less and not have more than 10% increase in turbidity when the natural condition is more than 50 NTU not to exceed a maximum increase of 25 NTU.

Toxic and other deleterious organic and inorganic substances - Substances shall not exceed Alaska Drinking Water Standards or EPA Quality Criteria for Water as applicable to substance.

Color - Shall not exceed 75 color units where water supply is or will be treated. Shall not exceed 5 color units where water supply is not treated.

Petroleum Hydrocarbons, Oils and Grease - Shall not cause a visible sheen upon the surface of the water. Shall not exceed concentrations which individually or in combination impart odor or taste as determined by organoleptic tests.

Residues - Floating solids, debris, sludge, deposits, foam, scum - shall not alone or in combination with other substances or wastes make water unfit or unsafe for use, cause a film, sheen, or discoloration on the surface of the water or adjoining shoreline, cause beaching of toxic or deleterious substances, or cause

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a sludge, solid emulsion to be deposited beneath or upon the surface of the water within the water column on the bottom or upon adjoining shorelines.

Arizona³

All surface waters shall be:

A. Free from substances attributable to domestic or industrial waste or other controllable sources that will settle to form sludge or bottom deposits which result in unsightly, putrescent, or odorous conditions in the receiving water or which adversely affect the ecosystem.

B. Free from floating debris, oil, grease, scum, and other floating materials attributable to domestic or industrial waste or other controllable sources which result in unsightly conditions in the receiving water or produce a deposit on a shoreline or bank bordering such waters or which adversely affect the ecosystem. A spill or discharge of oil into surface waters of the State in amounts sufficient to be harmful to the public health or welfare, or in amounts sufficient to cause a film or iridescent appearance on the surface of the water, shall be a violation of these water quality standards.

C. Free from materials attributable to domestic or industrial waste or other controllable sources in amounts sufficient to produce taste or odor in the water or detectable off flavor in the flesh of fish, or in amounts sufficient to change the existing color, turbidity or other conditions in the receiving stream or to adversely affect the ecosystem.

D. Free from toxic, corrosive, or other deleterious substances attributable to domestic or industrial waste or other controllable sources at levels or in combinations sufficient to be toxic to human, animal, plant, or aquatic life.

E. Free from substances attributable to point source discharges or nonpoint sources in concentrations which produce undesirable aquatic life or result in the dominance of nuisance species.

Arkansas⁴

A. All waters shall be free from substances attributed to man-caused point or nonpoint source discharges in concentrations that produce undesirable aquatic life or result in the dominance of nuisance species.

B. Color - True color shall not be increased in any waters to the extent that it will interfere with present or projected future uses of these waters.

C. Taste and Odor - Taste and odor producing substances shall be limited in receiving waters to concentrations that will not interfere with the production of potable water by reasonable water treatment processes, or impart unpalatable flavor to food, fish or result in offensive odors arising from the waters or otherwise interfere with the reasonable use of the water.

D. Solids, Floating Material, and Deposits - Receiving waters shall have no distinctly visible solids, scum or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits or sludge banks.

California⁵

Color - Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

Tastes and Odors - Waters shall not contain taste or odor producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or adversely affect beneficial uses.

Floating Material - Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

Suspended Material - Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Settleable Material - Waters shall not contain substances in concentrations that result in deposition of materials that cause nuisance or adversely affect beneficial uses.

Oil and Grease - Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating of the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Biostimulatory Substances - Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such

growths cause nuisance or adversely affect beneficial uses.

Sediment - The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity - Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

Toxicity - All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with the objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration or other appropriate methods as specified by the Regional Board.

The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary for other control water that is consistent with the requirements for "experimental water" as described in "Standard Methods for the Examination of Water and Wastewater", latest edition. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate, additional numerical receiving water objectives for specific toxicants will be established as sufficient data becomes available, and source control of toxic substances will be encouraged.

Colorado⁶

Except where authorized by permits, BMP's, or plans of operation approved by the Division, state waters shall be free from substances attributable to human-caused point source or nonpoint source discharges in amounts, concentrations or combinations:

A. which can settle to form bottom deposits detrimental to the beneficial uses. Deposits are stream bottom buildup of materials which include but

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are not limited to anaerobic sludges, mine slurry or tailings, silt, or mud; or

B. which form floating debris, scum, or other surface materials sufficient to harm existing beneficial uses; or

C. which produce color, odor, or other conditions in such a degree as to create a nuisance or harm existing beneficial uses or impart any undesirable taste to significant edible aquatic species or to the water; or

D. which are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life; or

E. which produce a predominance of undesirable aquatic life; or

F. which cause a film on the surface or produce a deposit on shorelines.

Connecticut⁷

The waters shall be free from chemical constituents in concentrations or combinations which would be harmful to human, animal or aquatic life for the most sensitive and governing water use class. Criteria for chemical constituents contained in guidelines published by the U.S. Environmental Protection Agency shall be considered. In areas where fisheries are the governing consideration and numerical limits have not been established, bioassays may be necessary to establish limits on toxic substances. The recommendations for bioassay procedures contained in "Standard Methods for the Examination of Water and Wastewater" and the application factors contained in EPA water quality guidelines shall be considered.

Delaware⁸

A. Waters shall be free from substances attributable to wastes of industrial, municipal, agricultural or other anthropogenic origin, such as:

(i) Floating debris, oil, grease, scum, foam, or other materials on the water surface that create a nuisance condition, or in any way interfere with attainment of designated uses of the water,

(ii) Settleable solids, sediments, sludge deposits, or suspended particles that may coat or cover submerged surfaces and create a nuisance condition, or in any way interfere with attainment of designated uses of the water,

(iii) Any pollutants, including those of a thermal, toxic, corrosive, bacteriological, radiological, or other nature, that may interfere with attainment of designated uses of the water, impart undesirable odors, tastes, or colors to the water or to aquatic life found therein, endanger public health, or result in dominance of nuisance species.

Florida⁹

17-3.011 Findings, Declaration and Intent.

- (1) Article II, Section 7 of the Florida Constitution requires abatement of water pollution, and conservation and protection of Florida's natural resources and scenic beauty.
- (2) Section 403.021, Florida Statutes, declares that the public policy of the State is to conserve the waters of the State to protect, maintain, and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and other aquatic life, and for domestic, agricultural, industrial, recreational, and other beneficial uses. It also prohibits the discharge of wastes into Florida waters without treatment necessary to protect those beneficial uses of the waters.
- (3) Congress, in Section 101(1)(2) of the Federal Water Pollution Control Act, as amended, declares that achievement by July 1, 1983, of water quality sufficient for the protection and propagation of fish, shellfish, and wildlife, as well as for recreation in and on the water, is an interim goal to be sought wherever attainable. Congress further states, in Section 101(a)(3), that it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited.
- (4) The present and future most beneficial uses of all waters of the State have been designated by the Department by means of the classification system set forth in this Chapter pursuant to Subsection 403.061(10), F.S. Water quality standards are established by the Department to protect these designated uses.
- (5) Pollution which causes or contributes to new violations of water quality standards or to continuation of existing violations is harmful to the waters of this State and shall not be allowed.

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- (6) The quality of waters which exceeds the minimum quality necessary to support the designated use of those waters shall be protected and enhanced.
- (7) The quality of waters which is lower than that necessary to support the designated use of those waters shall be protected and enhanced provided, however, the Department shall not strive to abate natural conditions.
- (8) The highest protection shall be afforded to Outstanding Florida Waters.
- (9) Because activities outside the State sometimes cause pollution of Florida's waters, the Department will make every reasonable effort to have such pollution abated.
- (10) Water quality standards apply equally to and shall be uniformly enforced in both the public and private sector.
- (11) The Department finds that excessive nutrients (total nitrogen and total phosphorus) constitute one of the most severe water quality problems facing the State. It shall be the Department's policy to limit the introduction of man-induced nutrients into waters of the State. Particular consideration shall be given to the protection from further nutrient enrichment of waters which are presently high in nutrient concentrations and sensitive to further nutrient concentrations and sensitive to further nutrient loadings. Also, particular consideration shall be given to the protection from nutrient enrichment of those waters presently containing very low nutrient concentrations: less than 0.3 milligrams per liter total nitrogen or less than 0.04 milligrams per liter total phosphorus.
- (12) Public interest shall not be construed to mean only those activities conducted solely to provide facilities or benefits to the general public. Private activities conducted for private purposes may also be in the public interest.
- (13) The Commission, recognizing the complexity of water quality management and the necessity to temper regulatory actions with the technological progress and the social and economic well-being of people, urges, however, that there be no compromise where discharges of pollutants constitute a valid hazard to human health.

- (14) The Commission request that the Secretary seek and use the best environmental information available when making decisions on the effects of chronically and acutely toxic substances and carcinogenic, mutagenic, and teratogenic substances. Additionally, the Secretary is requested to seek and encourage innovative research and developments in waste treatment alternatives that might better preserve environmental quality or at the same time reduce the energy and dollar costs of operation.
- (15) The present and future most beneficial uses of groundwaters of the State shall be protected to insure the availability and utility of this invaluable resource. To achieve such protection, the groundwaters of the State are classified and appropriate specific water quality criteria for those classes are set forth in this Chapter.
- (16) The criteria set forth in this Chapter are minimum levels which are necessary to protect the designated uses of a water body. It is the intent of this Commission that permit applicants should not be penalized due to a low detection limit associated with any specific criteria.
- (17) In adoption of the Outstanding Florida Waters designated on July 13, 1978, the Commission has been assured by the Secretary that adequate public notice has been given that these waters were being considered for this designation and that public comment was solicited and considered in determining their designation.
- (18)(a) The revisions made to Chapters 17-3 and 17-4 and the adoption of Chapter 17-6, Florida Administrative Code, are designed to protect the public health or welfare and to enhance the quality of waters of the State. They have been established taking into consideration the use and value of waters of the State for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.
- (b) Under the approach taken in the formulation of the rules adopted in this proceeding:
 - 1. These revisions to Chapters 17-3, 17-4 and adoption of Chapter 17-6, F.A.C., are based upon the best scientific knowledge related to

the protection of the various designated uses of waters of the State; and

2. The mixing zone, zone of discharge, site specific alternative criteria, exemption, and equitable allocation provisions are designed to provide an opportunity for the future consideration of factors relating to localized situations which could not adequately be addressed in this proceeding, including economic and social consequences, attainability, irretrievable conditions, natural background, and detectability.
- (c) This is an even-handed and balanced approach to attainment of water quality objectives. The Commission has specifically recognized that the social, economic and environmental costs may, under certain special circumstances, outweigh the social, economic and environmental benefits if the numerical criteria are enforced statewide. It is for that reason that the Commission has provided for mixing zones, zones of discharge, site specific alternative criteria, exemptions and other provisions in Chapters 17-3, 17-4, and 17-6, F.A.C. Furthermore, the continued availability of the moderating provisions is a vital factor providing a basis for the Commission's determination that water quality standards applicable to water classes in the rule are attainable taking into consideration environmental, technological, social, economic, and institutional factors. The companion provisions of Chapters 17-4 and 17-6, F.A.C., approved simultaneously with these Water Quality Standards are incorporated herein by reference as a substantive part of the State's comprehensive program for the control, abatement and prevention of water pollution.
- (d) Without the moderating provisions described in (b)2. above, the Commission would not have adopted the revisions described in (b)1. above nor determined that they are attainable as generally applicable water quality standards.

Specific Authority: 403.061, 403.062, 403.087, 403.504, 403.704, 403.804, 403.805, F.S.

Law Implemented: 403.021, 403.061, 403.085, 403.086, 403.087, 403.088, 403.101, 403.141, 403.161, 403.182, 403.502, 403.702, 403.708, 403.802, F.S.

History: Formerly 28-5.01, 17-3.01, Amended and Renumbered 3-1-79, Amended 2-1-83.

17-3.041 Special Protection, Outstanding Florida Waters

- (1) It shall be the Department policy to afford the highest protection to Outstanding Florida Waters (a complete listing of which is provided in subsection (4)) which generally include the following surface waters:
 - (a) waters in National Parks, Wildlife Refuges and Wilderness Areas; and
 - (b) waters in the State Park System and Wilderness Areas; and
 - (c) waters within areas purchased under the Environmentally Endangered Lands Bond Program, Conservation and Recreation Lands Program, Land Acquisition Trust Fund Program, and Save Our Coast Program; and
 - (d) rivers designated under the Florida Scenic and Wild Rivers Program, federal Wild and Scenic Rivers Act of 1968 as amended, and Myakka River Wild and Scenic Designation and Preservation Act; and
 - (e) waters within National Seashores, National Marine Sanctuaries, National Estuarine Research Reserves, and certain National Monuments; and
 - (f) waters in Aquatic Preserves created under the provisions of Chapter 258, Florida Statutes; and
 - (g) waters within the Big Cypress National Preserve; and
 - (h) Special Waters as listed in 17-3.041(4)(i); and
 - (i) Certain Waters within the Boundaries of the National Forests.
- (2) Each water body demonstrated to be of exceptional recreational or ecological significance may be designated as a Special Water. The following procedure shall be used in designating a Special Water.

- (a) Rulemaking procedures pursuant to Chapter 120, F.S., and Chapter 17-1, F.A.C., shall be followed.
 - (b) At least one fact-finding workshop shall be held in the affected area;
 - (c) All local county or municipal governments and state legislators whose districts or jurisdictions include all or part of a Special Water shall be notified at least 60 days prior to the workshop in writing by the Secretary.
 - (d) A prominent public notice shall be placed in a newspaper of general circulation in the area of the proposed Special Water at least 60 days prior to the workshop.
 - (e) An economic impact analysis, consistent with Chapter 120, shall be prepared which provides a general analysis of the impact on growth and development including such factors as impacts on planned or potential industrial, agricultural, or other development or expansion; and
 - (f) The Commission may designate a water of the State as a Special Water after making a finding that the waters are of exceptional recreational or ecological significance and a finding that the environmental, social, and economic benefits of the action outweigh the environmental, social, and economic tests.
- (3) The policy of this section shall be implemented through the permitting process pursuant to Section 17-4.242, F.A.C.

Georgia¹⁰

- A. All waters shall be free from materials associated with municipal or domestic sewage, industrial waste or any other waste which will settle to form sludge deposits that become putrescent, unsightly or otherwise objectionable.
- B. All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to interfere with legitimate water uses.

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C. All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses.

D. All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life.

Hawaii¹¹

All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants and subject to verification by monitoring as may be prescribed by the Director of Health, as follows:

A. Materials that will settle to form objectionable sludge or bottom deposits.

B. Floating debris, oil, grease, scum, or other floating materials.

C. Substances in amounts sufficient to produce taste or odor in the water or detectable off flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity, or other conditions in the receiving waters.

D. High temperatures; biocides; pathogenic organisms; toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water.

E. Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life.

F. Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial or industrial developments; or the cultivation and management of agricultural lands.

Idaho¹²

Waters of the State must not contain:

A. Hazardous Materials - Hazardous materials (see Idaho Department of Health and Welfare Rules and Regulations Section 01.2003,19.) in concentrations found to be of public health significance or to

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adversely affect designated or protected beneficial uses. These materials do not include suspended sediment produced as a result of nonpoint source activities.

B. **Deleterious Materials** - Deleterious materials (see Idaho Department of Health and Welfare Rules and Regulations Section 01.2003,07.) in concentrations that impair designated or protected beneficial uses without being hazardous: These materials do not include suspended sediment produced as a result of nonpoint source activities.

C. **Radioactive Materials** - Radioactive materials or radioactivity which:

(a) Exceed one-third (1/3) of the values listed in Idaho Department of Health and Welfare Rules and Regulations, Title 1, chapter 9, Section 01.9110,03.a.ii., "Rules Governing Radiation Control."

(b) Exceed concentrations required to meet the "Radiation Protection Guides" for maximum exposure of critical human organs recommended by the former Federal Radiation council in the case of food stuffs harvested from these waters for human consumption.

D. **Floating, Suspended or Submerged Matter** - Floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may adversely affect designated beneficial uses. this matter does not include suspended sediment produced as a result of nonpoint source activities.

E. **Excess Nutrients** - Excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated or protected beneficial uses.

F. **Oxygen-Demanding Materials** - Oxygen-demanding materials in concentrations that would result in an anaerobic water condition.

G. **Sediment** - Sediment in quantities specified in Idaho Department of Health and Welfare Rules and Regulations Section 01.2250, or, in the absence of specific sediment criteria, in quantities which impair beneficial uses. Determinations of impairment shall be based on water quality monitoring and surveillance and the information utilized as described in Idaho Department of Health and Welfare Rules and Regulations Section 01.2300, 04.b.

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Illinois¹³

Waters of the State shall be free from unnatural sludge or bottom deposits, floating debris, visible oil, odor, unnatural plant or algal growth, unnatural color or turbidity, or matter of other than natural origin in concentrations or combinations toxic or harmful to human, animal, plant, or aquatic life.

Indiana¹⁴

All waters at all times and at all places, including the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil or scum attributable to municipal, industrial, agricultural, and other land use practices or other discharges:

A. That will settle to form putrescent or otherwise objectionable deposits,

B. That are in amounts sufficient to be unsightly or deleterious,

C. That produce color, odor or other conditions in such degree as to create a nuisance,

D. Which are in amounts sufficient to injure, be acutely toxic to or otherwise produce serious adverse physiological responses in humans, animals, aquatic life or plants. As a guideline, toxic substances should be limited to the 96-hour median lethal concentration (LC50) for biota significant to the indigenous aquatic community or other representative organisms. This subsection shall not apply to the chemical control of aquatic plants or animals when that control is subject to approval by the Indiana Department of Natural Resources as provided by the Fish and Wildlife Act (IC 1971, 14-2-1),

E. Which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly or deleterious or be harmful to human, animal, plant, or aquatic life or otherwise impair the designated uses.

Iowa¹⁵

The following criteria are applicable to all surface waters including those which have been designated as class "A", "B", or "C" waters, at all places and at all times to protect livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation,

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and industrial, domestic, agricultural and other incidental water withdrawal uses not protected by class A, B, or C criteria in this rule.

A. Such waters shall be free from substances attributable to point source wastewater discharges that will settle to form sludge deposits.

B. Such waters shall be free from floating debris, oil, grease, scum and other floating materials attributable to wastewater discharges or agricultural practices in amounts sufficient to create a nuisance.

C. Such waters shall be free from materials attributable to wastewater discharges or agricultural practices producing objectionable color, odor or other aesthetically objectionable conditions.

D. Such waters shall be free from substances attributable to wastewater discharges or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, or plant life.

E. Such waters shall be free from substances, attributable to wastewater discharges or agricultural practices, in quantities which would produce undesirable or nuisance aquatic life.

Kansas¹⁶

All surface waters shall be free, at all times, from the harmful effects of substances that originate from artificial sources and that produce any public health hazards or nuisance conditions, or impairment of uses.

A. The harmful effects may result from:

(i) color producing substances;

(ii) heat or acidic or caustic substances;

(iii) Visible oil and grease and dissolved or emulsified grease concentrations;

(iv) deposits of solids, either organic or inorganic; floating materials attributable to municipal, industrial, or other waste disposal practices;

(v) Taste and odor-producing substances that interfere with the production of potable water by reasonable water treatment processes, or impart unpalatable flavor to fish, or result in noticeable offensive odors in the vicinity of the water;

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(vi) Any concentration of a substance that causes toxic effects, alone or in combination with other artificial or natural substances. Such substances shall be limited to concentrations in the receiving water that will not be harmful to human, animal, or plant life.

Kentucky¹⁷

Surface waters shall not be aesthetically or otherwise degraded by substances that:

1. Settle to form objectionable deposits;
2. Float as debris, scum, oil, or other matter to form a nuisance;
3. Produce objectionable color, odor, taste, or turbidity;
4. Injure, be toxic to or produce adverse physiological or behavioral responses in humans, animals, fish, and other aquatic life;
5. Produce undesirable aquatic life or result in the dominance of nuisance species.
6. Cause the following changes in radionuclides: -
 - a. Cause the gross total alpha particle activity including radium-226 but excluding radium and uranium to exceed 15 pCi/l;
 - b. Cause the combined radium-226 and radium-228 to exceed 5 pCi/l (specific determinations of radium-226 and radium-228 are not necessary if dissolved gross particle activity does not exceed 5 pCi/l;
 - c. Cause the concentration of total gross beta particle activity to exceed 50 pCi/l;
 - d. Cause the concentration of tritium to exceed 20,000 pCi/l;
 - e. Cause the concentration of total strontium-90 to exceed eight (8) pCi/l.

Louisiana¹⁸

All waters shall be free from such concentrations of substances attributable to wastewater or other discharges sufficient to:

- A. settle to form objectionable deposits;
- B. float as debris, scum, oil, or other matter to form nuisances;
- C. result in objectionable color, odor, taste, or turbidity;

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D. injure, be toxic or produce demonstrated adverse physiological response in humans, animals, fish, shellfish, wildlife, or plants; or

E. produce undesirable or nuisance aquatic life.

Maine¹⁹

All surface waters of the State shall be free of settled substances which alter the physical or chemical nature of bottom material and of floating substances, except as naturally occur, which impair the characteristics and designated uses ascribed to their class.

Maryland²⁰

The waters of this State may not be polluted by:

1. Substances attributed to sewage, industrial waste, or other waste that will settle to form sludge deposits that:

(a) Are unsightly, putrescent, or odorous; and

(b) Create a nuisance; or

(c) Interfere indirectly with water uses;

2. Any material including floating debris, oil, grease, scum, sludge and other floating materials, attributable to sewage, industrial waste, or other waste in amounts sufficient to:

(a) Be unsightly and create a nuisance;

(b) Produce taste or odor;

(c) Change the existing color;

(d) Change other chemical or physical conditions in the surface waters;

(e) create a nuisance; or

(f) Interfere directly or indirectly with water uses; and

3. High-temperature, toxic, corrosive or other deleterious substances attributable to sewage, industrial waste, or other waste in concentrations or combinations which:

(a) Interfere directly or indirectly with water uses; or

Massachusetts²¹

- (b) Are harmful to human, animal, plant, or aquatic life.

Aesthetics - All waters shall be free from pollutants in concentrations or combinations that:

- a. Settle to form objectionable deposits;
- b. Float as debris, scum or other matter to form nuisances;
- c. Produce objectionable odor, color, taste or turbidity;
- d. Result in the dominance or nuisance species.

Radioactive substances - Shall not exceed the recommended limits of the United States Environmental Protection Agency's National Drinking Water Regulations.

Tainting Substances - Shall not be in concentrations or combinations that produce undesirable flavors in the edible portions of aquatic organisms.

Color, Turbidity, Total Suspended Solids - Shall not be in concentrations or combinations that would exceed the recommended limits on the most sensitive receiving water use.

Oil and Grease - The water surface shall be free from floating oils, grease and petrochemicals and any concentrations or combinations in the water column or sediments that are aesthetically objectionable or deleterious to the biota are prohibited. For oil and grease of petroleum origin the maximum allowable discharge concentration in 15 mg/l.

Nutrients - Shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication.

Other constituents - Waters shall be free from pollutants in concentrations or combinations that:

- a. Exceed the recommended limits on the most sensitive receiving use;
- b. Injure, are toxic to, or produce adverse physiological or behavioral responses in humans or aquatic life; or

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- c. Exceed site-specific safe exposure levels determined by bioassay using sensitive species.

Michigan²²

The waters of the state shall not contain unnatural turbidity, color, oil films, floating solids, foams, settleable solids, suspended solids, or deposits in quantities which are or may become injurious to any designated use.

Minnesota²³

No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any intrastate waters of the state so as to cause any nuisance conditions, such as the presence of significant amounts of floating solids, scum, oil slicks, excessive suspended solids, material discolorations, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, or other offensive or harmful effects.

Mississippi²⁴

A. Waters shall be free from substances attributable to municipal, industrial, agricultural or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits. .

B. Waters shall be free from floating debris, oil, scum, and other floating materials attributable to municipal, industrial, agricultural or other discharges in amounts sufficient to be unsightly or deleterious.

C. Waters shall be free from materials attributable to municipal, industrial, agricultural or other discharges producing color, odor, or other conditions in such degree as to create a nuisance.

D. Waters shall be free from substances attributable to municipal, industrial agricultural or other discharges in concentrations or combinations which are toxic or harmful to humans, animals or aquatic life.

Missouri²⁵

All waters of the State at all times shall be:

A. Free from substances that will cause the formation of putrescent or otherwise objectionable bottom deposits.

B. Free from oil, scum and floating debris in sufficient amounts to be unsightly or deleterious.

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C. Free from materials that cause color, odor, or other conditions in such degree as to create a nuisance.

D. Free from substances or conditions that have a harmful effect on human, animal, or aquatic life.

Montana²⁶

State surface waters must be free from substances attributable to municipal, industrial, agricultural practices or other discharges that will:

A. Settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;

B. Create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 mg/l) or globules of grease or other floating materials;

C. Produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible;

D. Create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and

E. Create conditions which produce undesirable aquatic life.

Nebraska²⁷

Toxic Substances - No toxic substances alone or in combination with other substances in concentrations rendering the receiving water unsafe or unsuitable for aquatic life will be allowed.

Aesthetics and Public Health - Waters shall be free from human induced pollution which cause

1. noxious odors;
2. floating, suspended, colloidal, or settleable materials that produce objectionable films, colors, turbidity, or deposits; and
3. the occurrence of undesirable or nuisance aquatic life

State

Nevada²⁸

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The following standards are applicable to all waters of the State:

A. Waters must be free from substances attributable to domestic or industrial waste or other controllable sources that will settle to form sludge or bottom deposits in amounts sufficient to be unsightly, putrescent or odorous or in amounts sufficient to interfere with any beneficial use of the water.

B. Waters must be free from floating debris, oil, grease, scum and other floating materials attributable to domestic or industrial waste or other controllable sources in amounts sufficient to be unsightly or in amounts sufficient to interfere with any beneficial use of the water.

C. Waters must be free from materials attributable to domestic or industrial waste or other controllable sources in amounts sufficient to produce taste or odor in the water or detectable off-flavor in the flesh of fish or in amounts sufficient to change the existing color, turbidity or other conditions in the receiving stream to such a degree as to create a public nuisance or in amounts sufficient to interfere with any beneficial use of the water.

D. Waters must be free from high temperature, biocides, organisms pathogenic to human beings, toxic, corrosive or other deleterious substances attributable to domestic or industrial waste or other controllable sources at levels or combinations sufficient to be toxic to human, animal, plant or aquatic life or in amounts sufficient to interfere with any beneficial use of the water.

E. The presence of toxic materials in a water must be evaluated by use of a 96-hour bioassay. Survival of test organisms must not be less than that in control tests which utilize appropriate control water. The test organisms and control water must be specified by the department. In addition, acute bioassays may be required to determine effluent limitations and the exact test method to be used must be defined by the department. Failure to determine presence of toxic materials by these methods does not preclude determination of excessive levels of toxic materials on the basis of other criteria or methods.

F. Radioactive materials attributable to municipal, industrial or other controllable sources must be the minimum concentrations which are physically and economically feasible to achieve. In no case must materials exceed the limits established in the 1962

Public Health Service Drinking Water Standards (or later amendments) or 1/30th of the MPC values given for continuous occupational exposure in the "National Bureau of Standards Handbook No. 69." The concentrations in water must not result in accumulation of radioactivity in plants or animals that result in a hazard to humans or harm to aquatic life.

G. Waste from municipal, industrial or other controllable sources containing arsenic, barium, boron, cadmium, chromium, cyanide, fluoride, lead, selenium, silver, copper and zinc that are reasonably amenable to treatment of control must not be discharged untreated or uncontrolled into the waters of Nevada. In addition, the limits for concentrations of the chemical constituents must provide water quality consistent with the mandatory requirements of the 1962 Public Health Service Drinking Water Standards.

H. The specified standards are not considered violated when the natural conditions of the receiving water are outside the established limits, including periods of extreme high or low flow. Where effluents are discharged to such waters, the discharges are not considered a contributor to substandard conditions provided maximum treatment in compliance with permit requirements is maintained.

New Hampshire²⁹

A. Class A waters shall be of the highest quality and shall contain not more than fifty coliform bacteria per one hundred milliliters. There shall be no discharge of any sewage or wastes into waters of this classification. The waters of this classification shall be considered as being potentially acceptable for water supply uses after disinfection.

B. Class B waters shall be of the second highest quality and shall have no objectionable physical characteristics. There shall be no disposal of sewage or waste into said waters except those which have received adequate treatment to prevent the lowering of the physical, chemical or bacteriological characteristics below those given above, nor shall such disposal of sewage or waste be inimical to fish life or to the maintenance of fish life in said receiving waters. The waters of this classification shall be considered as being acceptable for bathing and other recreational purposes and, after adequate treatment, for use as water supplies.

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C. Class C waters shall be of the third highest quality and shall be free from slick, odors, turbidity, and surface-floating solids of unreasonable kind or quantity, and shall be free from chemicals and other materials and conditions inimical to fish life or the maintenance of fish life. The waters of this classification shall be considered as being acceptable for recreational boating, fishing, or for industrial water supply uses either with or without treatment depending upon individual requirements.

D. Class D waters shall be the lowest classification and shall be free from slick, sludge deposits, odors, and surface-floating materials of unreasonable kind, quantity or duration, taking into consideration the necessities of the industries involved. The waters of this classification shall be aesthetically acceptable. Such water shall also be suitable for certain industrial purposes, power and navigation.

New Jersey³⁰

Toxic substances in waters of the State shall not be at levels that are toxic to humans or the aquatic biota, or that bioaccumulate in the aquatic biota so as to render them unfit for human consumption.

New Mexico³¹

1-102. GENERAL STANDARDS.

The following general standards apply at all times (unless otherwise specified in Part 2) to all surface waters of the State which can support any of the following attainable uses: any subcategory of fishery (high quality coldwater, coldwater, marginal coldwater, warmwater or limited warmwater fishery), either subcategory of recreation (primary or secondary contact recreation), domestic water supply, livestock and wildlife watering, or irrigation. The general standards are not intended to provide for support of undesirable aquatic life. Watercourses shall be free of any water contaminant in such quantity and of such duration as may with reasonable probability inure human health, animal or plant life or property, or to unreasonably interfere with the public welfare or the use of property. The occurrence of a water contaminant or a deficiency of dissolved oxygen attributable to natural causes or the reasonable operation and maintenance of irrigation and flood control facilities is not subject to these standards.

A. Stream Bottom Deposits: The stream shall be free of water contaminants from other than natural causes that will settle and adversely inhibit the growth of normal flora and fauna or significantly alter the physical or chemical properties of the bottom.

Siltation resulting from the reasonable operation and maintenance of irrigation and flood control facilities is not subject to these standards.

B. Floating Solids, Oil and Grease: Receiving water shall be free of objectionable oils, scum, grease and other floating materials resulting from other than natural causes.

C. Color: Color-producing materials resulting from other than natural causes shall not create an aesthetically undesirable condition nor should color impair the use of the water by desirable aquatic life presently common in New Mexico waters.

D. Odor and Taste of Fish: Water contaminants from other than natural causes shall be limited to concentrations that will not impart unpalatable flavor to fish, or result in offensive odor arising from the stream or otherwise interfere with the reasonable use of the water.

H. Pathogens: The stream shall be virtually free of pathogens. In particular, waters used for irrigation of table crops such as lettuce shall be virtually free of Salmonella and Shigella species.

New York³²

Turbidity - No increase except from natural sources that will cause a substantial visible contrast to natural conditions. In cases of naturally turbid waters, the contrast will be due to increased turbidity.

Color - None from man-made sources that will be detrimental to anticipated best usage of water.

Suspended, colloidal or settleable solids - None from sewage, industrial wastes or other wastes which will cause deposition or be deleterious for any best usage determined for the specific waters which are assigned to each class.

Oil and floating substances - No residue attributable to sewage, industrial wastes or other wastes nor visible oil film nor globules of grease.

Taste and odor-producing substances, toxic wastes and deleterious substances - None in amounts that will be injurious to fishlife or which in any manner shall adversely affect the flavor, color or odor thereof, or impair the waters for any best usage as determined for the specific waters which are assigned to each class.

North Carolina³³

Drinking Water Supply (disinfection only)

A. nonpoint source pollution: only that pollution which will not adversely impact the waters for use as a water supply or any other designated use.

B. Sewage, industrial wastes, or other wastes: none

C. Toxic and other deleterious substances: none

Drinking Water Supply (treatment plus disinfection)

A. Industrial wastes: none except for non-process industrial discharges specifically approved by the commission;

B. Nonpoint Source Pollution: only that pollution which will not adversely impact the waters for use as a water supply of any other designated use;

C. Odor producing substances contained in sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances or wastes, as will not cause taste and odor difficulties in water supplies which cannot be corrected by treatment, impair the palatability of fish, or have a deleterious effect upon any best usage established for waters of this class;

D. Sewage, industrial wastes, and other wastes: none which will have an adverse effect on human health or which are not effectively treated to the satisfaction of the commission and in accordance with the requirements of the Division of Health Services, North Carolina Department of Human Resources;

E. Toxic and other deleterious substances: none

Recreational Water Supply

A. Odor producing substances contained in sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances or wastes, as will not cause taste and odor difficulties in water supplies which cannot be corrected by treatment, impair the palatability of fish, or have a deleterious effect upon any best usage established for waters of this class.

B. Sewage, industrial wastes, or other wastes: none which will have an adverse effect on human health or which are not effectively treated to the satisfaction of the commission and in accordance with the

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requirements of the Division of Health Services, North Carolina Department of Human Resources.

C. Total dissolved solids: not greater than 500 mg/l.

D. Toxic and other deleterious substances: none.

North Dakota³⁴

All waters of the state shall be:

A. Free from substances attributable to municipal, industrial, or other discharges or agricultural practices that will cause the formation of putrescent or otherwise objectionable sludge deposits.

B. Free from floating debris, oil, scum, and other floating materials attributable to municipal, industrial, or other discharges or agricultural practices in sufficient amount to be unsightly or deleterious.

C. Free from materials attributable to municipal, industrial, or other discharges or agricultural practices producing color, odor, or other conditions in such a degree as to create a nuisance or render any undesirable taste to fish flesh, or in any way, make fish inedible.

D. Free from substances attributable to municipal, industrial, or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant, or resident aquatic biota.

E. Free from oil or grease residue attributable to wastewater, which causes a visible film or sheen upon the waters or any discoloration of the surface of adjoining shoreline or causes a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines or prevents classified uses of such waters.

F. There shall be no materials such as garbage, rubbish, trash, cans, bottles, or any unwanted or discarded material disposed of into the waters of the state.

Ohio³⁵

The waters of the state to every extent practical and possible shall be:

A. Free from suspended solids or other substances that enter the waters as a result of human activity and that will settle to form putrescent or otherwise

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objectionable sludge deposits, or that will adversely affect aquatic life;

B. Free from floating debris, oil, scum and other floating materials entering the waters as a result of human activity in amounts sufficient to be unsightly or cause degradation;

C. Free from materials entering the waters as a result of human activity producing color, odor or other conditions in such a degree as to create a nuisance;

D. Free from substances entering the waters as a result of human activity in concentrations that are toxic or harmful to human, animal or aquatic life and/or are rapidly lethal in the mixing zone;

E. Free from nutrients entering the waters as a result of human activity in concentrations that create nuisance growths of aquatic weeds and algae.

Oklahoma³⁶

To be aesthetically enjoyable, the surface waters of the State must be free from floating materials and suspended substances that produce objectionable color and turbidity. The water must also be free from noxious odors and tastes, from materials that settle to form objectionable deposits, and discharges that produce undesirable or nuisance aquatic life.

Color - Surface waters of the State shall be virtually free from all coloring materials which produce an aesthetically unpleasant appearance.

Solids - The surface waters of the State shall be maintained so as to be essentially free of floating debris, bottom deposits, scum, foam and other materials, including suspended substances of a persistent nature, from other than natural sources.

Taste and Odor - Taste and odor producing substances from other than natural origin shall be limited to concentrations that will not interfere with the production of a potable water supply by modern treatment methods or produce abnormal flavors, colors, tastes and odors in fish flesh or other edible wildlife, or result in offensive odors in the vicinity of the water, or otherwise interfere with beneficial uses.

Oregon³⁷

Not specified

ERRATA SHEET -- OREGON TOXICS

(p) Toxic Substances:

(A) Toxic substances shall not be introduced above natural background levels in the waters of the state in amounts, concentrations, or combinations which may be harmful, may chemically change to harmful forms in the environment, or may bioaccumulate to levels that adversely affect public health, safety, or welfare; aquatic life; or other designated beneficial uses.

(B) Levels of toxic substances shall not exceed the most recent criteria values for organic and inorganic pollutants established by EPA and published in Quality Criteria for Water(1986). A list of the criteria is presented in Table 20.

(C) The criteria in paragraph (B) of this subsection shall apply unless data from scientifically valid studies demonstrate that the most sensitive designated beneficial uses will not be adversely affected by exceeding a criterion or that a more restrictive criterion is warranted to protect beneficial uses, as accepted by the Department on a site specific basis. Where no published EPA criteria exist for a toxic substance, public health advisories and other published scientific literature may be considered and used, if appropriate, to set guidance values.

(D) Bio-assessment studies such as laboratory bioassays or instream measurements of indigenous biological communities, shall be conducted, as the Department deems necessary, to monitor the toxicity of complex effluents, other suspected discharges or chemical substances without numeric criteria, to aquatic life. These studies, properly conducted in accordance with standard testing procedures, may be considered as scientifically valid data for the purposes of paragraph (C) of this subsection. If toxicity occurs, the Department shall evaluate and implement measures necessary to reduce toxicity on a case-by-case basis.

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Pennsylvania³⁸

Water shall not contain substances attributable to point or nonpoint source waste discharges in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life.

Specific substances to be controlled shall include, but shall not be limited to floating debris, oil, grease, scum and other floating materials, toxic substances, pesticides, chlorinated hydrocarbons, carcinogenic, mutagenic and teratogenic materials, and substances which produce color, tastes, odors, turbidity, or settle to form deposits.

Rhode Island³⁹

1. At a minimum, all waters shall be free of pollutants in concentrations that will:

- a. Adversely effect the composition of bottom aquatic life;
- b. Adversely effect the physical or chemical nature of the bottom;
- c. Interfere with the propagation of fish and shellfish; or
- d. Undesirably alter the qualitative and quantitative character of the biota.

2. Aesthetics - All waters shall be free from pollutants in concentrations or combinations that:

- a. Settle to form objectionable deposits;
- b. Float as debris, scum or other matter to form nuisances;
- c. Produce objectionable odor, color, taste or turbidity; or,
- d. Result in the dominance of nuisance species.

South Carolina⁴⁰

All ground waters and surface waters of the State shall at all times, regardless of flow, be free from:

A. Sewage, industrial waste, or other waste that will settle to form sludge deposits that are unsightly, putrescent, or odorous to such degree as to create a nuisance or interfere with classified water uses or existing water uses;

B. Floating debris, oil, grease, scum, an other floating material attributable to sewage, industrial waste, or other waste in amounts sufficient to be unsightly to such a degree as to create a nuisance or interfere with classified water uses or existing water uses;

C. Sewage, industrial, or other waste which produce taste or odor or change the existing color or physical, chemical, or biological conditions in the receiving waters or aquifers to such a degree as to create a nuisance or interfere with classified uses or existing water uses; and,

D. High temperature, toxic, corrosive, or deleterious substances attributable to sewage, industrial waste, or other waste in concentrations or combinations which interfere with classified water uses, existing water uses, or which are harmful to human, animal, plant or aquatic life.

South Dakota⁴¹

Visible pollutants prohibited - Raw or treated sewage, garbage, municipal wastes, industrial wastes or agricultural wastes which produce floating solids, scum, oil slicks, material discoloration, visible gassing, sludge deposits, slimes, algal blooms, fungus growths, or other offensive effects may not be discharged or caused to be discharged into any lake or stream.

Toxic materials prohibited - Substances which produce concentrations of any substance toxic to humans, animals, plants, or aquatic life may not be discharged or caused to be discharged into any lake or stream.

Taste and odor producing chemicals - No materials may be discharged or caused to be discharged into any lake or stream which will impart undesirable tastes or undesirable odors to the receiving water in concentrations that impair a beneficial use.

Nuisance aquatic life - No materials may be discharged or caused to be discharged into any lake or stream in concentrations which produce aquatic life which impair a beneficial use or create a health problem.

Petroleum products - No insoluble materials of petroleum derivation may be discharged or caused to be discharged into a lake or stream which results in concentrations in excess of 10 mg/l or imparts a visible film or sheen to the surface of the water of the adjoining shorelines.

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Tennessee⁴²

Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily sleek, or the formation of slimes, bottom deposits or sludge banks of such size or character as may impair the usefulness of the water as a source of domestic water supply.

Turbidity or color - There shall be no turbidity or color in amounts or characteristics that cannot be reduced to acceptable concentrations by conventional water treatment processes.

Taste or Odor - the waters shall not contain substances which will result in taste or odor that prevent the production of potable water by conventional water treatment processes.

Toxic Substances - the waters shall not contain toxic substances, whether alone or in combination with other substances, which will produce toxic conditions that materially affect the health and safety of man or animals, or impair the safety of conventionally treated water supplies.

Texas⁴³

(b) Aesthetic parameters.

(1) Concentrations of taste and odor producing substances shall not interfere with the production of potable water by reasonable water treatment methods, impart unpalatable flavor to food fish including shellfish, result in offensive odors arising from the waters, or otherwise interfere with the reasonable use of the water in the state.

(2) Surface water shall be essentially free of floating debris and suspended solids that are conducive to producing adverse responses in aquatic organisms or putrescible sludge deposits or sediment layers which adversely affect benthic biota or any lawful uses.

(3) Surface waters shall be essentially free of settleable solids conducive to changes in flow characteristics of stream channels or the untimely filling of reservoirs, lakes, and bays.

(4) Surface waters shall be maintained in an aesthetically attractive condition.

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(5) Waste discharges shall not cause substantial and persistent changes from ambient conditions of turbidity or color.

(6) There shall be no foaming or frothing of a persistent nature.

(7) Surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse.

Utah⁴⁴

It shall be unlawful, and a violation of these regulations, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, as determined by bioassay or other tests performed in accordance with standard procedures determined by the committee.

Vermont⁴⁵

3. **Nutrients** - No increase which would accelerate eutrophication or result in concentrations that may stimulate the growth of aquatic plants, fungi or bacteria, in a manner which has an undue adverse effect on any beneficial values or uses.

4. **Aquatic Habitat** - No change from background conditions which would have an undue adverse effect on the composition of the aquatic biota, the physical or chemical nature of the substrate or the species composition or propagation of fishes.

5. **Sludge deposits or solid refuse** - None

6. **Settleable solids, floating solids, oil, grease, scum, or total suspended solids** - None in such concentrations or combinations which would have an undue adverse effect on any beneficial values or uses.

Virginia⁴⁶

All State waters shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amounts, or combinations which contravene established standards or interfere directly or indirectly with reasonable, beneficial

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uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life. Specific substances to be controlled include, but are not limited to: floating debris, oil, scum, and other floating materials; toxic substances; substances that produce color, tastes, turbidity, odors, or settle to form sludge deposits, and substances which nourish undesirable or nuisance aquatic plant life. Effluents which tend to raise the temperature of the receiving water will also be controlled.

Washington⁴⁷

Aesthetic values shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste.

West Virginia⁴⁸

No sewage, industrial wastes or other wastes present in any of the waters of the State shall cause therein or materially contribute to any of the following conditions thereof:

- A. Distinctly visible floating or settleable solids, suspended solids, scum, foam or oily slicks;
- B. Deposits or sludge banks on the bottom;
- C. Odors in the vicinity of the waters;
- D. Taste and/or odor that would adversely affect the designated uses of the affected waters;
- E. Concentrations of materials harmful, hazardous or toxic to man, animal or aquatic life;
- F. Distinctly visible color;
- G. Concentrations of bacteria which may impair or interfere with the designated uses of the affected waters;
- H. Requiring an unreasonable degree of treatment for the production of potable water by modern water treatment processes as commonly employed.
- I. Any other condition, including radiological exposure, which alters the chemical, physical or biological integrity of the waters of the State.

State

Wisconsin⁴⁹

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Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all waters including the mixing zone and the effluent channel meet the following conditions at all times and under all flow conditions :

A. Substances that will cause objectionable deposits, on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

B. Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

C. Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

D. Substances in concentrations or combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

Wyoming⁵⁰

Settleable Solids - In all Wyoming surface waters attributable to or influenced by the activities of man that will settle to form sludge, bank or bottom deposits shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife, etc.

Floating Solids - In all Wyoming surface waters floating debris, scum, and other floating materials attributable to or influenced by the activities of man shall not be present in quantities which could result in significant aesthetic degradation, significant degradation of habitat for aquatic life, or adversely affect public water supplies, agricultural or industrial water use, plant life or wildlife, etc.

Taste, Odor and Color - All class I, II, and III waters shall not contain substances attributable to or influenced by the activities of man which produce taste, odor and color and that would:

- a. Of themselves or in combination, impart an unpalatable or off-flavor in fish flesh;

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- b. Visibly alter the natural color of the water or impart color to skin, clothing, vessels, or structures;
- c. Produce detectable odor; or
- d. Directly through interaction among themselves, or with chemicals used in existing water treatment processes, result in concentrations that will impart undesirable taste or odor to public water supplies.

American Samoa⁵¹

- A. They shall be substantially free from materials attributable to sewage, industrial wastes, or other activities of man that will produce color, odor, or taste, either of itself or in combinations, or in the biota.
- B. They shall be substantially free from visible floating materials, grease, oil, scum, foam, and other floating matter attributable to sewage, industrial wastes, or other activities of man.
- C. They shall be substantially free from materials attributable to sewage, industrial wastes, or other activities of man that will produce visible turbidity or settle to form deposits.
- D. They shall be free from substances and conditions or combinations thereof attributable to sewage, industrial wastes, or other activities of man which may be toxic to humans, other animals, plants, and aquatic life.

District of Columbia⁵²

The waters of the District shall be free from substances attributable to point or non-point sources discharged in concentrations that do the following:

- A. Settle to form objectionable deposits;
- B. Float as debris, scum, oil or other matter to form nuisances;
- C. Produce objectionable odor, color, taste or turbidity;
- D. Injure, are toxic to or produce adverse physiological or behavioral responses in humans, plants or animals; or,
- E. Produce undesirable aquatic life or result in the dominance of nuisance species.

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Guam⁵³

All waters shall meet generally accepted aesthetic qualifications, shall be capable of supporting desirable aquatic life, and shall be free from substances, conditions or combinations thereof attributable to domestic, commercial and industrial discharges or agricultural, construction and land-use practices or other human activities that:

1. cause visible floating materials, debris, oils, grease, scum, foam or other floating matter;
2. produce visible turbidity, settle to form deposits or otherwise adversely affect desirable aquatic life;
3. produce objectionable color, odor, or taste, directly or by chemical or biological action;
4. are toxic or harmful to humans, animals, plants or desirable aquatic life; and
5. induce the growth of undesirable aquatic life.

Puerto Rico⁵⁵

Solids and other Matter - The waters of Puerto Rico shall not contain material attributable to discharges that will settle to form objectionable deposits. Nor will they contain floating debris, scum, oil and other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious.

Color, Odor, Taste or Turbidity - The waters of Puerto Rico shall be free from color, odor, taste or turbidity attributable to discharges in such a degree as to create a nuisance.

Toxic Substances - The waters of Puerto Rico shall not contain any substance in a concentration which is toxic or which produces undesirable physiological responses in human, fish or other animal life, or plants.

Trust Territory⁵⁶

All waters shall be:

- A. Free of visible floating materials, oils, grease, scum, and other floating matter attributable to the activities of man.
- B. Free from materials attributable to sewage, industrial waste or other activities of man that produce visible turbidity or settle out to form deposits.

State

General Provisions

C. Free from materials attributable to sewage, industrial waste or other activities of man that produce objectionable color, odor or taste directly or by chemical or biological action in the water or biota.

D. Free from substances attributable to the activities of man that induce undesirable aquatic life or degrade the indigenous biota.

E. Free from substances and conditions attributable to the activities of man that may be toxic or cause irritation to humans, animals, or plants.

Virgin Islands⁵⁷

All surface waters shall meet generally accepted aesthetic qualifications and shall be capable of supporting diversified aquatic life. These waters shall be free of substances attributable to municipal, industrial, or other discharges or wastes as follows:

A. Materials that will settle to form objectionable deposits.

B. Floating debris, oil, scum, and other matter.

C. Substances producing objectionable color, odor, taste, or turbidity.

D. Materials, including radionuclides, in concentrations or combinations which are toxic or which produce undesirable physiological responses in human, fish and other animal life, and plants.

E. Substances and conditions or combinations thereof in concentrations which produce undesirable aquatic life.