

CHAPTER 730. OKLAHOMA'S WATER QUALITY STANDARDS

SUBCHAPTER 1. GENERAL PROVISIONS

252:730-1-2. Definitions

The following words and terms, when used in this Chapter, shall have the following meaning unless the context clearly indicates otherwise:

"**7Q2**" means the seven-day, two-year low flow.

"**30Q2**" means the thirty-day, two-year low flow.

"**Acute test failure**" means greater than or equal to 50% mortality to appropriate test species at or below the critical effluent dilution after a ~~48-hour~~ 48-hour test as provided in OAC 252:606-6-29.

"**Acute toxicity**" means greater than or equal to 50% lethality to appropriate test organisms in a test sample.

"**Alpha particle**" means a positively charged particle emitted by certain radioactive materials. It is the least penetrating of the three common types of radiation (alpha, beta, and gamma) and usually is not dangerous to plants, animals or humans.

"**Ambient**" means surrounding, especially of or pertaining to the environment about an entity, but undisturbed and unaffected by it.

"**Aquifer**" means a formation that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs. This implies an ability to store and transmit water; unconsolidated sands and gravels are typical examples.

"**Aquifer Storage and Recovery Activities**" or ("~~ASR~~")**ASR**" means activities that exclusively include activities for the storage of water in and recovery of water from an aquifer pursuant to a site-specific aquifer storage and recovery plan authorized by 82 O.S. § 1020.2A. Activities not conducted pursuant to a site-specific aquifer storage and recovery plan shall not be considered ASR activities. For purposes of this chapter, ASR activities also shall not include groundwater recharge or augmentation through a natural connection with a farm pond or other impoundment otherwise authorized by law.

"**Artificial Aquifer Recharge**" means activities with the primary purpose of recharging or augmenting an aquifer with no intention of recovering such water for future use. For purposes of this chapter, Artificial Aquifer Recharge activities shall not include activities specifically authorized pursuant to 82 O.S. § 1020.2(G) or stormwater runoff management practices otherwise authorized by law.

"**Assimilative capacity**" means the amount of pollution a waterbody can receive and still maintain the water quality standards designated for that waterbody.

"**Attainable uses**" means the best uses achievable for a particular waterbody given water of adequate quality. The process of use attainability analysis can, and in certain cases must, be used to determine attainable uses for a waterbody.

"**Background**" means the ambient condition upstream or upgradient from a facility, practice, or activity which has not been affected by that facility, practice, or activity.

"**Beneficial uses**" means a classification of the waters of the State, according to their best uses in the interest of the public.

"**Benthic macroinvertebrates**" means invertebrate animals that are large enough to be seen by the unaided eye, can be retained by a U. S. Standard No. 30 sieve, and live at least part of their life cycles within or upon available substrate in a body of water or water transport system.

"**Best available technology**" means the best proven technology, treatment techniques, or other economically viable means which are commercially available.

"**Best management practices**" or "**BMPs**" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state or United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"**Beta particle**" means a negatively charged elementary particle emitted by radioactive decay that may cause skin burns. It is easily stopped by a thin sheet of metal.

"**Bioaccumulation Factor**" or "**BAF**" is the ratio of the concentration of a chemical in the tissue of an aquatic organism to the concentration of the chemical dissolved in ambient water at the site of sampling.

"**Bioconcentration factor**" or "**BCF**" means the relative measure of the ability of a contaminant to be stored in tissues and thus to accumulate through the food chain and is shown as the following formula: $BCF = \text{Tissue Concentration} \div \text{Water Concentration}$.

"**Biotic Ligand Model**" or "**BLM**" means a metal bioavailability model that uses receiving waterbody characteristics and monitoring data to develop site-specific water quality criteria.

"**Board**" means the Environmental Quality Board

"**BOD**" means biochemical oxygen demand.

"**Carcinogenic**" means cancer producing.

"**Chronic test failure**" means the statistically significant difference (at the 95% confidence level) between survival, reproduction, or growth of the test organism at or below the chronic critical dilution after completion of a 7-day test as provided in OAC 252:606-6-29, or other test as approved by the permitting authority and the EPA Regional Administrator, and a control.

"**Chronic toxicity**" means a statistically significant difference (at the 95% confidence level) between longer-term survival and/or reproduction, or growth of the appropriate test organisms in a test sample and a control. Teratogenicity and mutagenicity are considered to be effects of chronic toxicity.

"Coliform group organisms" means all of the aerobic and facultative anaerobic gram-negative, non-spore-forming rod shaped bacteria that ferment lactose broth with gas formation within 48 hours at 35°C. Measurements of bacteria can be expressed as either colony forming units (cfu) or most probable number (MPN).

"Color" means true color as well as apparent color. True color is the color of the water from which turbidity has been removed. Apparent color includes not only the color due to substances in solution (true color), but also that color due to suspended matter.

"Conservation plan" means, but is not limited to, a written plan which lists activities, management practices, and maintenance or operating procedures designed to promote natural resource conservation and is intended for the prevention and reduction of pollution of waters of the state.

"Cool Water Aquatic Community" or "CWAC" means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature, and habitat are adequate to support cool water climax fish communities and includes an environment suitable for the full range of cool water benthos. Typical species may include smallmouth bass, certain darters, and stoneflies.

"Criterion" means a number or narrative statement assigned to protect a designated beneficial use.

"Critical dilution" means, for chronic whole effluent toxicity testing, an effluent dilution expressed as a percentage representative of the dilution afforded a wastewater discharge according to the appropriate Q*-dependent chronic mixing zone equation.

"Critical temperature" means the higher of the seven-day maximum temperature likely to occur with a 50% probability each year, or 29.4°C (85°F).

"Criterion" means a number or narrative statement assigned to protect a designated beneficial use.

"Degradation" means any condition caused by the activities of humans which result in the prolonged impairment of any constituent of the aquatic environment.

"DEQ" means the Oklahoma Department of Environmental Quality.

"Designated beneficial uses" means those uses specified for each waterbody or segment whether or not they are being attained.

"Dissolved oxygen" or "DO" means the amount of oxygen dissolved in water at any given time, depending upon the water temperature, the partial pressure of oxygen in the atmosphere in contact with the water, the concentration of dissolved organic substances in the water, and the physical aeration of the water.

"DRASTIC" means that standardized system developed by the United States Environmental Protection Agency for evaluating groundwater vulnerability to pollution, based upon consideration of depth to water (D), net recharge (R), aquifer media (A), soil media (S), topography (T), impact of the vadose zone media (I), and hydraulic conductivity (C) of the aquifer.

"EPA" means the United States Environmental Protection Agency.

"Ephemeral stream" means an entire stream which flows only during or immediately after a rainfall event and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

"Epilimnion" means the uppermost homothermal region of a stratified lake.

"Eutrophication" means the process whereby the condition of a waterbody changes from one of low biologic productivity and clear water to one of high productivity and water made turbid by the accelerated growth of algae.

"Existing beneficial uses" means those uses listed in Title 40 C.F.R. CFR §131.3 actually attained by a waterbody on or after November 28, 1975. These uses may include public water supplies, fish and wildlife propagation, recreational uses, agriculture, industrial water supplies, navigation, and aesthetics.

"Existing point source discharge(s)" means, for purposes of OAC 252:730-5-25, point source discharges other than stormwater which were/are in existence when the ORW, HQW, or SWS, or SWS-R designation was/is assigned to the water(s) which receive(s) the discharge. The load from a point source discharge which is subject to the no increase limitation shall be based on the permitted mass loadings and concentrations, as appropriate, in the discharge permit effective when the limitation was assigned. Publicly owned treatment works may use design flow, mass loadings, or concentration as appropriate if those flows, loadings, or concentrations were approved as a portion of Oklahoma's Water Quality Management Plan prior to the application of the ORW, HQW, SWS or SWS-R limitation.

"Fresh groundwater" means groundwater with ~~naturally-occurring~~ naturally occurring concentrations of total dissolved solids less than 10,000 mg/L, or with levels of total dissolved solids of 10,000 or more mg/L caused by human activities.

"Geometric mean" means the nth root of the product of the samples.

"Groundwater" means *"waters of the state under the surface of the earth regardless of the geologic structure in which it is standing or moving outside the cut bank of any definite stream."* [82 O.S. § 1020.1(1)].

"Groundwater basin" means a distinct underground body of water overlain by contiguous land and having substantially the same geological and hydrological characteristics and yield capabilities.

"Habitat Limited Aquatic Community" or "HLAC" means a subcategory of the beneficial use "Fish and Wildlife Propagation" meeting the conditions specified in OAC 252:730-5-12(b).

"High Quality Water" or "HQW" means those waters of the state whose historic water quality and physical habitat provide conditions suitable for the support of sensitive and intolerant climax communities of aquatic organisms, whether or not that waterbody currently contains such a community, and support high levels of recreational opportunity.

"HUC" means hydrologic unit code utilized by the United States Geologic Survey and other federal and state agencies as a way of identifying all drainage basins in the United States in a nested arrangement from largest to smallest, consisting of a multi-digit code which identifies each of the levels of classification within two-digit fields.

"Intolerant climax fish community" means habitat and water quality adequate to support game fishes or other sensitive species introduced or native to the biotic province or ecological region, which require specific or narrow ranges of high quality environmental conditions.

"Lake" means:

(A) An impoundment of waters of the state over 50 acre-feet in volume which is either:

- (i) owned or operated by federal, state, county, or local government or
- (ii) appears in Oklahoma's Clean Lakes Inventory.

(B) Surface impoundments which are used as a treatment works for the purpose of treating, stabilizing, or holding wastes are excluded from this definition.

"**LC50**" means lethal concentration and is the concentration of a toxicant in an external medium that is lethal to fifty percent of the test animals for a specified period of exposure.

"**Long-term average flow**" means an arithmetic average stream flow over a representative period of record.

"**MDL**" means the Method Detection Limit and is defined as the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. MDL is dependent upon the analyte of concern.

"**Mixing zone**" means when a liquid of a different quality than the receiving water is discharged into the receiving water, a mixing zone is formed. Concentration of the liquid within the mixing zone decreases until it is completely mixed with receiving water. A regulatory mixing zone is described in OAC 252:730-5-26.

"**Narrative criteria**" means statements or other qualitative expressions of chemical, physical or biological parameters that are assigned to protect a beneficial use.

"**Natural source**" means source of contamination which is not human induced.

"**NLW impairment study**" means a scientific process of surveying the chemical, physical, and biological characteristics of a nutrient-threatened reservoir to determine whether the reservoir's beneficial uses are being impaired by human-induced eutrophication.

"**Nonpoint source**" means a source of pollution without a well defined point of origin.

"**NTU**" means Nephelometric Turbidity Unit, which is the unit of measure using the method based upon a comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension (formazin). The higher the intensity of scattered light, the higher the turbidity.

"**Numerical criteria**" means concentrations or other quantitative measures of chemical, physical, or biological parameters that are assigned to protect a beneficial use.

"**Numerical standard**" means the most stringent of the numerical criteria assigned to the beneficial uses for a given stream.

"**Nutrient impaired reservoir**" means a reservoir with a beneficial use or uses determined by an NLW Impairment Study to be impaired by human-induced eutrophication.

"**Nutrient-limited watershed**" means a watershed of a waterbody with a designated beneficial use which is adversely affected by excess nutrients as determined by Carlson's Trophic State Index (using chlorophyll-a) of 62 or greater or is otherwise listed as "NLW" in Appendix A of this Chapter.

"**Nutrients**" means elements or compounds essential as raw materials for an organism's growth and development; these include carbon, oxygen, nitrogen, and phosphorus.

"**ORW**" means Outstanding Resource Water.

"**OWRB**" means Oklahoma Water Resources Board.

"**Picocurie**" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

"**Point source**" means any discernable, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, well, discrete fissure, container, rolling stock, or concentrated animal feeding operation from which pollutants are or may be discharged. This term does not include return flows from irrigation agriculture.

"**Pollutant**" means any material, substance, or property which may cause pollution.

"**Pollution**" means *"contamination or other alteration of the physical, chemical or biological properties of any natural waters of the State, or such discharge of any liquid, gaseous or solid substance into any waters of the State as will or is likely to create a nuisance or render such waters harmful, or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life."* [82 O.S. §1084.2(1)].

"**Polychlorinated biphenyls**" or "**PCBs**" means a group of organic compounds (206 possible) which are constructed of two phenyl rings and more than one chlorine atom.

"**PQL**" means Practical Quantitation Limit and is defined as 5 times the MDL. The PQL represents a practical and routinely achievable detection limit with high confidence.

"**Put and take fishery**" means the introduction of a fish species into a body of water for the express purpose of sport fish harvest where existing conditions preclude a naturally reproducing population.

"**Q***" means dilution capacity.

"**Regulatory low flow**" means a condition where the flow of water in a stream is significantly reduced, often during prolonged dry weather. This phenomenon is characterized by a decrease in stream flow, which can be defined by specific statistics such as 7Q2 or 30Q2. Regulatory low flow is important for setting permit discharge limits and ensuring ecological protection, as it can lead to water quality issues and affect water resources.

"**Salinity**" means the concentration of salt in water.

"**Sample standard**" means the arithmetic mean of historical data from October 1976 to September 1983 except as otherwise provided in Appendix F of this Chapter, plus two standard deviations of the mean.

"**Seasonal base flow**" means the sustained or fair-weather runoff, which includes but is not limited to groundwater runoff and delayed subsurface runoff.

"**Seasonal seven-day, two-year low flow**" means the 7-day low flow of a stream likely to occur with a 50% probability for a season with the applicable dates in Table 1 of Appendix G of this Chapter.

"**Seasonal 7Q2**" means the seasonal seven-day, two-year low flow.

"Sensitive Public and Private Water Supply" or "SWS" means those waters of the state which constitute sensitive public and private water supplies as a result of their unique physical conditions.

"Sensitive representative species" means *Ceriodaphnia dubia*, *Daphnia magna*, *Daphnia pulex*, *Pimphales promelas* (Fathead minnow), *Lepomis macrochirus* (Bluegill sunfish), *Ceriodaphnia dubia*, *Daphnia magna*, *Daphnia pulex*, *Pimphales promelas* (Fathead minnow), *Lepomis macrochirus* (Bluegill sunfish), or other sensitive organisms indigenous to a particular waterbody.

~~"Sensitive Public and Private Water Supply" or "SWS" means those waters of the state which constitute sensitive public and private water supplies as a result of their unique physical conditions.~~

"SWS-R" means waterbodies classified as sensitive public and private water supplies that may be augmented with reclaimed water for the purpose of indirect potable reuse.

"Seven-day, two-year low flow" means the 7-day low flow of a stream likely to occur with a 50% probability each year.

"Standard deviation" means a statistical measure of the dispersion around the arithmetic mean of the data.

"Standard Methods" means the publication "Standard Methods for the Examination of Water and Wastewater," published jointly by the American Public Health Association, American Water Works Association, and Water Environment Federation.

"Standards" means, when capitalized, this Chapter, which constitutes the Oklahoma Water Quality Standards described in 82 O.S. §1085.30. Whenever this term is not capitalized or is singular, it means the most stringent of the criteria assigned to protect the beneficial uses designated for a specified water of the State.

"Stormwater" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Subwatershed" means a smaller component of the larger watershed.

~~"Total Dissolved Selenium" or "TDS_{Se}" means the measure of the combined content of all species of selenium that are dissolved in the water column and small enough to pass through a 0.45 micron (µm) filter.~~

"Thermal stratification" means horizontal layers of different densities produced in a lake caused by temperature.

"Total Dissolved Selenium" or "TDS_{Se}" means the measure of the combined content of all species of selenium that are dissolved in the water column and small enough to pass through a 0.45 micron (µm) filter.

"Variance" means a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable condition during the term of the water quality standards variance.

"Warm Water Aquatic Community" or "WWAC" means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support intolerant climax fish communities and includes an environment suitable for the full range of warm water benthos.

"Wastes" means "industrial waste and all other liquid, gaseous or solid substances which may pollute or tend to pollute any waters of the state." [82 O. S. §1084.2(2)].

"Waterbody" means any specified segment or body of waters of the state, including but not limited to an entire stream or lake or a portion thereof.

"Water quality" means physical, chemical, and biological characteristics of water which determine diversity, stability, and productivity of the climax biotic community or affect human health.

"Waters of the state" means "all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this State or any portion thereof." [82 O.S. § 1084.2(3)].

"Watershed" means the drainage area of a waterbody including all direct or indirect tributaries.

"Yearly mean standard" means the arithmetic mean of historical data from October 1976 to September 1983 except as otherwise provided in Appendix F of this Chapter, plus one standard deviation of the mean. The moving yearly mean standard is an average of the last five years of available data.

"Zone of passage" means a three-dimensional zone expressed as a volume in the receiving stream through which mobile aquatic organisms may traverse the stream past a discharge without being affected by it. A regulatory zone of passage is described in OAC 252:730-5-26.

SUBCHAPTER 3. ANTIDegradation REQUIREMENTS

252:730-3-2. Applications of antidegradation policy

(a) **Application to Outstanding Resource Waters (ORW).** Certain waters of the state constitute an outstanding resource or have exceptional recreational and/or ecological significance. These waters include streams designated "Scenic River" or "ORW" in Appendix A of this Chapter, and waters of the State located within watersheds of Scenic Rivers. Additionally, these may include waters located within National and State parks, forests, wilderness areas, wildlife management areas, and wildlife refuges, and waters which contain species listed pursuant to the federal Endangered Species Act as described in OAC 252:730-5-25(c)(2)(A) and OAC 252:740-13-6(c). No degradation of water quality shall be allowed in these waters.

(b) **Application to High Quality Waters (HQW).** It is recognized that certain waters of the state possess existing water quality which exceeds those levels necessary to support propagation of fishes, shellfishes, wildlife, and recreation in and on the water. These high quality waters shall be maintained and protected.

(c) **Application to Sensitive Public and Private Water Supplies (SWS) and SWS-R.** It is recognized that certain public and private water supplies possess conditions that make them more susceptible to pollution events and require additional protection. These sensitive water supplies shall be maintained and protected.

(d) **Application to beneficial uses.** Except as provided by 27 O.S. § 1-3-101(B), and subject to the provisions of ~~85 O.S. § 1085.30~~27A O.S. § 2-6-103.2, no water quality degradation which will interfere with the attainment or maintenance of an existing or designated

beneficial use shall be allowed.

(e) **Application to improved waters.** As the quality of any waters of the state improve, no degradation of such improved waters shall be allowed.

SUBCHAPTER 5. SURFACE WATER QUALITY STANDARDS

PART 1. GENERAL PROVISIONS

252:730-5-2. Beneficial uses: existing and designated

(a) Beneficial uses are designated for all waters of the state. Such uses are protected through the restrictions imposed by the antidegradation policy statement, narrative criteria and numerical standards. Some uses require higher quality water than others. When multiple uses are assigned to the same waters, all such uses shall be protected. Beneficial uses are also protected by permits or other authorizations issued to meet these Standards for point sources and through practical management or regulatory programs for nonpoint sources. The criteria to protect the beneficial uses designated in OAC 252:730-5-3 or in Appendix A of this Chapter for certain surface waters of the state are described in sections OAC 252:730-5-10 through OAC 252:730-5-20 of this Chapter.

(b) Beneficial uses designated in OAC 252:730-5-3 or in Appendix A of this Chapter for certain surface waters of the state may be downgraded to a lower use or removed entirely, or subcategories of such designated uses may be established, if:

(1) the use, despite being designated, is not a use which is or has been actually attained in the water body on or after November 28, 1975; and

(2) for the use of Fish and Wildlife Propagation, Primary Body Contact Recreation or Secondary Body Contact Recreation, or any subcategory of such use or uses, it is demonstrated to the satisfaction of DEQ and the ~~U.S.E.P.A.~~ EPA that attaining the designated use is not feasible because:

(A) naturally occurring pollutant concentrations prevent the attainment of the use, or

(B) natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met, or

(C) human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place, or

(D) dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use, or

(E) physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses, or

(F) controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act as amended would result in substantial and widespread economic and social impact; and

(3) such downgrade, removal, or establishment of a subcategory will maintain or improve the quality of water affected.

252:730-5-4. Applicability of narrative and numerical criteria

(a) For purposes of permitting discharges for attainment of numerical criteria or establishing ~~site specific~~ site-specific criteria, streamflows of the greater of ~~1.0~~ 1 cfs or ~~70%~~ the regulatory low flow shall be used to determine appropriate permit conditions unless otherwise provided in OAC 252:730 or OAC 252:740.

(b) When numerical criteria do not apply, water column conditions including dissolved oxygen concentrations, organoleptic compounds, nutrients, and oil and grease shall be maintained to prevent nuisance conditions caused by man's activities.

(c) Narrative criteria listed in this Chapter shall be maintained at all times and apply to all surface waters of the state.

(d) If more than one narrative or numerical criteria is assigned to a stream, the most stringent shall be maintained.

PART 3. BENEFICIAL USES AND CRITERIA TO PROTECT USES

252:730-5-9. General narrative criteria

(a) **Minerals.** Increased mineralization from elements such as, but not limited to, calcium, magnesium, sodium and their associated anions shall not impair any beneficial use. Derivations of certain historic concentrations can be found in Appendix F of this Chapter.

(b) **Solids (suspended and/or settleable).** 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.

(c) **Taste and odor.** Taste and odor producing substances from other than natural origin shall 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 impair any beneficial use.

(d) **Nutrients.** Nutrients from point source discharges or other sources shall not cause excessive growth of periphyton, phytoplankton, or aquatic macrophyte communities which impairs any existing or designated beneficial use.

252:730-5-10. Public and private water supplies

The following criteria apply to surface waters of the state having the designated beneficial use of Public and Private Water Supplies:

- (1) **Raw water numerical criteria.** For surface water designated as public and private water supplies, the numerical criteria for substances identified under the "Public and Private Water Supply (Raw Water)" column in Table 2 of Appendix G of this Chapter shall not be exceeded. Raw water numerical criteria are considered long-term average standards. For purposes of permitting discharges for attainment of these standards, the permitting authority shall use long-term average receiving stream flows and complete mixing of effluent and receiving water to determine appropriate permit limits.
- (2) **Radioactive materials.**
 - (A) There shall be no discharge of radioactive materials in excess of the criteria found in Title 10 Code of Federal Regulations Part 20, Appendix B, Table 2.
 - (B) The concentration of gross alpha particles shall not exceed the criteria specified in ~~(A)~~ (i) through ~~(D)~~ (iv) of this subparagraph, or the naturally occurring concentration, whichever is higher.
 - (i) The combined dissolved concentration of Radium-226 and Radium-228, and Strontium-90, shall not exceed 5 picocuries/liter, and 8 picocuries/liter, respectively.
 - (ii) Gross alpha particle concentrations, including Radium-226 but excluding radon and uranium, shall not exceed 15 picocuries/liter.
 - (iii) The gross beta concentration shall not exceed 50 picocuries/liter.
 - (iv) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in waters having the designated use of Public and Private Water Supply shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.
- (3) **Coliform bacteria.**
 - (A) The bacteria of the total coliform group shall not exceed a monthly geometric mean of 5,000/100 ~~mt~~mg/L at a point of intake for public or private water supply.
 - (B) The geometric mean will be determined by multiple tube fermentation or membrane filter procedures based on a minimum of not less than five (5) samples taken over a period of not more than thirty (30) days.
 - (C) Further, in no more than 5% of the total samples during any thirty (30)-day period shall the bacteria of the total coliform group exceed 20,000/100 ~~mt~~mg/L.
 - (D) In cases where both public and private water supply and primary body contact recreation uses are designated, the primary body contact criteria will apply.
- (4) **Oil and grease (petroleum and non-petroleum related).** For Public and Private Water Supplies, surface waters of the state shall be maintained free from oil and grease and taste and odors.
- (5) **General criteria.**
 - (A) The quality of the surface waters of the state which are designated as public and private water supplies shall be protected, maintained, and improved when feasible, so that the waters can be used as sources of public and private raw water supplies.
 - (B) These waters shall be maintained so that they will not be toxic, carcinogenic, mutagenic, or teratogenic to humans.
- (6) **Water column criteria to protect for the consumption of fish flesh and water.**
 - (A) Surface waters of the state with the designated beneficial use of Public and Private Water Supply shall be protected to allow for the consumption of fish, shellfish, and water.
 - (B) The water column numerical criteria to protect human health for the consumption of fish flesh and water for the substances identified in Table 2 of Appendix G of this Chapter shall be as prescribed under the "Fish Consumption and Water" column in Table 2 of Appendix G in all surface waters designated with the beneficial use of Public and Private Water Supply. Water column numerical criteria to protect human health for the consumption of fish flesh and water are considered long-term average standards. For purposes of permitting discharges for attainment of these standards, the permitting authority shall use long-term average receiving stream flows and complete mixing of effluent and receiving water to determine appropriate permit limits. Water column criteria to protect human health for the consumption of fish flesh only may be found in the column "Fish Consumption" in Table 2 of Appendix G of this Chapter.
- (7) **Chlorophyll-a numerical criterion for certain waters.** The long-term average concentration of chlorophyll-a at a depth of 0.5 meters below the surface shall not exceed 0.010 ~~milligrams per liter~~ mg/L in Wister Lake, Tenkiller Ferry Reservoir, nor any waterbody designated SWS or SWS-R in Appendix A of this Chapter. Wherever such criterion is exceeded, numerical phosphorus or nitrogen criteria or both may be promulgated.
- (8) **Phosphorus numerical criterion applicable to certain waters.** The long-term average total phosphorus concentration at a depth of 0.5 meters below the surface shall not exceed 0.0168 ~~milligrams per liter~~ mg/L in Lake Eucha and 0.0141 ~~milligrams per liter~~ mg/L in Spavinaw Lake.

252:730-5-12. Fish and wildlife propagation

- (a) **List of subcategories.** The narrative and numerical criteria in this section are designed to maintain and protect the beneficial use classification of "Fish and Wildlife Propagation". This classification encompasses several subcategories which are capable of sustaining different climax communities of fish and shellfish. These subcategories are Habitat Limited Aquatic Community, Warm Water Aquatic Community, Cool Water Aquatic Community (Excluding Lake Waters), and Trout Fishery (Put and Take).
- (b) **Habitat Limited Aquatic Community subcategory.**

(1) ~~Habitat limited aquatic community~~ Habitat Limited Aquatic Community means a subcategory of the beneficial use "Fish and Wildlife Propagation" where the water chemistry and habitat are not adequate to support a "Warm Water Aquatic Community" because:

- (A) Naturally occurring water chemistry prevents the attainment of the use; or
- (B) Naturally occurring ephemeral, intermittent or low flow conditions, or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of a sufficient volume of effluent to enable uses to be met; or
- (C) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
- (D) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use; or
- (E) Physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of the "Warm Water Aquatic Community" beneficial use.

(2) Habitat Limited Aquatic Community may also be designated where controls more stringent than those required by sections 301(b) and 306 of the federal Clean Water Act as amended, which would be necessary to meet standards or criteria associated with the beneficial use subcategories of Cool Water Aquatic Community or Warm Water Aquatic Community, would result in substantial and widespread economic and social impact.

(c) **Warm Water Aquatic Community subcategory.** Warm Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality and habitat are adequate to support intolerant climax fish communities and includes an environment suitable for the full range of warm water benthos.

(d) **Cool Water Aquatic Community subcategory.** Cool Water Aquatic Community means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature, and habitat are adequate to support cool water climax fish communities and includes an environment suitable for the full range of cool water benthos. Typical species may include smallmouth bass, certain darters, and stoneflies.

(e) **Trout Fishery subcategory.** Trout Fishery (Put and Take) means a subcategory of the beneficial use category "Fish and Wildlife Propagation" where the water quality, water temperature, and habitat are adequate to support a seasonal put and take trout fishery. Typical species may include trout.

(f) **Criteria used in protection of Fish and Wildlife Propagation.** The narrative and numerical criteria to maintain and protect the use of "Fish and Wildlife Propagation" and its subcategories shall include:

(1) **Dissolved oxygen.**

(A) Dissolved oxygen (DO) criteria are designed to protect the diverse aquatic communities of Oklahoma.

(B) Allowable loadings designed to attain these dissolved oxygen criteria are provided as follows:

(i) For streams with sufficient historical data, the allowable load shall be based on meeting the dissolved oxygen concentration standard at the seven-day, two-year low flow and the appropriate seasonal temperatures prescribed in Table 1 of Appendix G of this Chapter.

(ii) For streams lacking sufficient historical data, or when the appropriate flow is less than ~~one (1) cubic foot per second (cfs)~~ 1 cfs, the allowable load shall be based on meeting the dissolved oxygen concentration standard at ~~one (1)~~ 1 cfs and the appropriate seasonal temperature.

(iii) Provided, for streams designated in OAC 252:730 Appendix A as HLAC or WWAC which have sufficient historical data as determined by the permitting authority, the allowable BOD load may be based upon meeting the dissolved oxygen concentration standard at the applicable seasonal temperature and corresponding seasonal seven-day, two-year low flow.

(iv) Provided further, in stream segments where dams or other structures have substantially affected the historic flow regime of the stream segment, including but not limited to the portions of the Verdigris and Arkansas Rivers constituting the McClellan-Kerr Arkansas River Navigation System, a properly designed and implemented site-specific hydrologic study approved by the permitting authority and DEQ may be used to determine the appropriate regulatory low flow. In such circumstances, the allowable BOD load may be based upon meeting the dissolved oxygen concentration standard at the applicable seasonal temperature and the site-specific regulatory low flow.

(C) Except for naturally occurring conditions, the dissolved oxygen criteria are as set forth in Table 1 of Appendix G of this Chapter. Additionally;

(i) For streams, no more than two DO samples shall exhibit a DO concentration of less than 2.0 mg/L in any given year.

(ii) For lakes, no more than 50% of the water volume shall exhibit a DO concentration less than 2.0 mg/L. If no volumetric data is available, then no more than 70% of the water column at any given sample site shall exhibit a DO concentration less than 2.0 mg/L. If a lake-specific study including historical analysis demonstrates that a different percent volume or percent water column than described above is protective of the WWAC use, then that lake-specific result takes precedence.

(2) **Temperature.**

(A) At no time shall heat be added to any surface water in excess of the amount that will raise the temperature of the receiving water more than 2.8°C outside the mixing zone.

(B) The normal daily and seasonal variations that were present before the addition of heat from other than natural sources shall be maintained.

(C) In streams, temperature determinations shall be made by averaging representative temperature measurements of the ~~cross-sectional~~ cross-sectional area of the stream at the end of the mixing zone.

(D) In lakes, the temperature of the water column and/or epilimnion, if thermal stratification exists, shall not be raised more than 1.7°C above that which existed before the addition of heat of artificial origin, based upon the average of temperatures taken from the surface to the bottom of the lake, or surface to the bottom of the epilimnion if the lake is stratified.

(E) No heat of artificial origin shall be added that causes the receiving stream water temperature to exceed the maximums specified below:

(i) The critical temperature plus 2.8°C in ~~warm water and habitat limited aquatic community~~ Warm Water and Habitat Limited Aquatic Community streams and lakes, except in the segment of the Arkansas River from Red Rock Creek to the headwaters of Keystone Reservoir where the maximum temperature shall not exceed 34.4°C.

(ii) 28.9°C in streams designated ~~cool water aquatic community~~ Cool Water Aquatic Community.

(iii) 20°C in streams designated ~~trout fishery~~ Trout Fishery (put and take) (Put and Take).

(F) Water in privately-owned reservoirs used in the process of cooling water for industrial purposes is exempt from these temperature restrictions, provided the water released from any such lake or reservoir into a stream system shall meet the water quality standards of the receiving stream.

(3) **pH (hydrogen ion activity).** The pH values shall be between 6.5 and 9.0 in waters designated for ~~fish and wildlife propagation~~ Fish and Wildlife Propagation, unless pH values outside that range are due to natural conditions.

(4) **Oil and grease (petroleum and non-petroleum related).**

(A) All waters having the designated beneficial use of any subcategory of Fish and Wildlife Propagation shall be maintained free of oil and grease to prevent a visible sheen of oil or globules of oil or grease on or in the water.

(B) Oil and grease shall not be present in quantities that adhere to stream banks and coat bottoms of water courses or which cause deleterious effects to the biota.

(5) **Biological criteria.**

(A) Aquatic life in all waterbodies with the beneficial use designation of Fish and Wildlife Propagation (excluding waters designated "Trout, ~~put and take~~ Put and Take") shall not exhibit degraded conditions as indicated by one or both of the following:

(i) Comparative regional reference data from a station of reasonably similar watershed size or flow, habitat type, and Fish and Wildlife beneficial use subcategory designation or

(ii) By comparison with historical data from the waterbody being evaluated.

(B) Compliance with the biological criteria to protect Fish and Wildlife Propagation set forth in this paragraph shall be based upon measures including, but not limited to, diversity, similarity, community structure, species tolerance, trophic structure, dominant species, indices of biotic integrity (~~HBI's~~)(IBIs), indices of well being (~~HWB's~~)(IBWs), or other measures.

(6) **Toxic substances (for protection of fish and wildlife).**

(A) Surface waters of the state shall not exhibit acute toxicity and shall not exhibit chronic toxicity outside the chronic regulatory mixing zone. Acute test failure and chronic test failure shall be used to determine discharger compliance with these narrative aquatic life toxics criteria. The narrative criterion specified in this subparagraph (~~A~~) which prohibits acute toxicity shall be maintained at all times and shall apply to all surface waters of the state. The narrative criterion specified in this subparagraph (A) which prohibits chronic toxicity shall apply at all times outside the chronic regulatory mixing zone and within the zone of passage to all waters of the state except:

(i) When a discharge into surface waters designated with the Fish and Wildlife Propagation beneficial use complies with and meets the discharge permit limitations but the flow immediately upstream from the discharge is less than ~~one (1) cubic foot per second~~ 1 cfs or when the flow falls below the seven-day, two-year low flow, whichever is larger. For purposes of the permitting process, the regulatory low flow shall be the larger of ~~one (1) cubic foot per second~~ 1 cfs or the seven-day, two-year low flow; and

(ii) To streams listed as ephemeral in Appendix A.

(B) Procedures to implement these narrative criteria are found in OAC 252:740 Subchapter 3.

(C) Toxicants for which there are specific numerical criteria are listed in Table 2 of Appendix G of this Chapter.

(D) For toxicants not specified in Table 2 of Appendix G of this Chapter, concentrations of toxic substances with bio-concentration factors of 5 or less shall not exceed 0.1 of published LC50 value(s) for sensitive representative species using standard testing methods, giving consideration to site-specific water quality characteristics.

(E) Concentrations of toxic substances with bio-concentration factors greater than 5 shall not exceed 0.01 of published LC50 value(s) for sensitive representative species using standard testing methods, giving consideration to site-specific water quality characteristics.

(F) Permit limits to prevent toxicity caused by discharge of chlorine and ammonia are determined pursuant to the narrative criteria contained within (A) and (B) of this paragraph.

(G) The acute and chronic numerical criteria listed in the "Fish and Wildlife Propagation" column in Table 2 of Appendix G of this Chapter apply to all waters of the state designated with any of the beneficial use sub-categories of

Fish and Wildlife Propagation. The numerical criteria which prohibit acute toxicity apply outside the acute regulatory mixing zone.

(i) The numerical criteria specified in Table 2 of Appendix G which prohibit chronic toxicity shall apply at all times outside the chronic regulatory mixing zone and within the zone of passage to all waters of the state except:

(I) When a discharge into surface waters designated with the Fish and Wildlife Propagation beneficial use complies with and meets the discharge permit limitations but the flow immediately upstream from the discharge is less than ~~one (1) cubic foot per second~~ 1 cfs or when the flow falls below the seven-day, two-year low flow, whichever is larger. For purposes of the permitting process, the regulatory low flow shall be the larger of ~~one (1) cubic foot per second~~ 1 cfs or the seven-day, two-year low flow; and

(II) To streams listed as ephemeral in Appendix A.

(ii) Equations are presented in Table 2 of Appendix G for those substances whose toxicity varies with water chemistry.

(H) For purposes of assessment per OAC 252:740-15-5, the conversion factors identified in Table 3 of Appendix G of this Chapter may be used to convert the total recoverable metals criteria set forth in Table 2 of Appendix G into dissolved metals values. Such dissolved metals values may be determined by multiplying the total recoverable numerical criteria in OAC 252:730 Appendix G, Table 2 by the conversion factors identified in Table 3 of Appendix G.

(7) Turbidity.

(A) Turbidity from other than natural sources shall be restricted to not exceed the following numerical limits:

(i) Cool Water Aquatic Community/Trout Fisheries: 10 NTUs;

(ii) Lakes: 25 NTUs; and

(iii) Other surface waters: 50 NTUs.

(B) In waters where background turbidity exceeds these values, turbidity from point sources shall be restricted to not exceed ambient levels.

(C) Numerical criteria listed in (A) of this paragraph apply only to seasonal base flow conditions.

(D) Elevated turbidity levels may be expected during, and for several days after, a runoff event.

(8) Sediments. Concentrations or loads of suspended or bedded sediments that are caused by human activity shall not impair the Fish and Wildlife Propagation use or any subcategory thereof.

252:730-5-13. Agriculture

(a) **General.** The surface waters of the state shall be maintained so that toxicity does not inhibit continued ingestion by livestock or irrigation of crops.

(b) **Definitions.** The following words and terms, when used in this Section, shall have the following meaning unless the context clearly indicates otherwise:

(1) "Long-term average concentration" means the arithmetic mean of at least ten samples taken across at least twelve months.

(2) "Short-term average concentration" means the arithmetic mean of all samples taken during any 30-day period.

(c) Subcategories of the Agriculture beneficial use.

(1) The narrative and numerical criteria stated or referenced in this section and in Appendix F of this ~~chapter~~ Chapter are designed to maintain and protect the beneficial use classification of "Agriculture". This classification encompasses two subcategories which are capable of sustaining different agricultural applications. These subcategories are Irrigation Agriculture and Livestock Agriculture.

(2) Irrigation Agriculture means a subcategory of the Agriculture beneficial use requiring water quality conditions that are dictated by individual crop tolerances.

(3) Livestock Agriculture is a subcategory of the Agriculture beneficial use requiring much less stringent protection than crop irrigation.

(4) If a waterbody is designated in Appendix A of this Chapter with the Agriculture beneficial use but does not have a designation of a subcategory thereof, the criteria for Irrigation Agriculture shall be applicable.

(d) **Highly saline water.** Highly saline water should be used with best management practices as outlined in "Diagnosis and Reclamation of Saline Soils," United States Department of Agriculture Handbook No. 60 (1958).

(e) **General criteria for the protection of Irrigation Agriculture.** This subsection prescribes general criteria to protect the Irrigation Agriculture subcategory. For chlorides, sulfates and total dissolved solids at 180 °C (see Standard Methods), the arithmetic mean of the concentration of the samples taken for a year in a particular segment shall not exceed the historical "yearly mean standard" determined from the table in Appendix F of this Chapter. For permitting purposes, the long-term average concentration shall not exceed the yearly mean standard. Yearly mean standards shall be implemented by the permitting authority using the greater of 1.47 cfs or long-term average flows and complete mixing of effluent and receiving water. For permitting purposes, the short term average concentration shall not exceed the sample standard. Sample standards shall be implemented by the permitting authority using the greater of ~~1.0~~ 1 cfs or short term average flows and complete mixing of effluent and receiving water. The data from sampling stations in each segment are averaged, and the mean chloride, sulfate, and total dissolved solids at 180 °C are presented in Appendix F of this Chapter. Segment averages shall be used unless more appropriate data are available.

(f) **Historic concentrations.** The table in Appendix F of this Chapter contains statistical values from historical water quality data of mineral constituents. In cases where mineral content varies within a segment, the most pertinent data available should be used.

(g) **Criteria to protect Irrigation Agriculture subcategory.** For the purpose of protecting the Irrigation Agriculture subcategory, neither long-term average concentrations nor ~~short-term~~ short-term average concentrations of minerals shall be required to be less than 700 mg/L for TDS, nor less than 250 mg/L for either chlorides or sulfates.

(h) **Criteria to protect Livestock Agriculture subcategory.** For the purpose of protecting the Livestock Agriculture subcategory, neither long-term average concentrations nor ~~short-term~~ short-term average concentrations of minerals shall be required to be less than 2500 mg/L for TDS.

(i) **Support tests.** For purposes of assessment, listing and reporting under sections 303(d) and 305(b) of the federal Clean Water Act as amended, the procedure for determining use support of the Agriculture beneficial use or any subcategory thereof with respect to TDS, chlorides and sulfates shall be as follows:

(1) The Agriculture beneficial use designated for a waterbody shall be deemed to be fully supported with respect to TDS or chlorides or sulfates if both the mean of all sample concentrations calculated for that parameter from that waterbody do not exceed the yearly mean standard prescribed in OAC 252:730 Appendix F or ~~site specific~~ site-specific criteria prescribed in OAC 252:730 Appendix E, and no more than 10% of the sample concentrations from that waterbody exceed the sample standard prescribed in OAC 252:730 Appendix F or ~~site specific criteria~~ site-specific prescribed in OAC 252:730 Appendix E.

(2) The Agriculture beneficial use designated for a waterbody shall be deemed to be not supported with respect to TDS or chlorides or sulfates if either the mean of all sample concentrations calculated for that parameter from that waterbody exceeds the yearly mean standard prescribed in OAC 252:730 Appendix F or ~~site specific~~ site-specific criteria prescribed in OAC 252:730 Appendix E, or greater than 10% of the sample concentrations from that waterbody exceed the sample standard prescribed in Appendix F or ~~site specific~~ site-specific criteria prescribed in OAC 252:730 Appendix E. Provided, if the sample concentrations are each less than 700 mg/L for TDS, or less than 250 mg/L for either chlorides or sulfates, then the Agriculture beneficial use shall be deemed to be fully supported for that parameter.

252:730-5-16. Primary Body Contact Recreation

(a) Primary Body Contact Recreation involves direct body contact with the water where a possibility of ingestion exists. In these cases the water shall not contain chemical, physical or biological substances in concentrations that are irritating to skin or sense organs or are toxic or cause illness upon ingestion by human beings.

(b) In waters designated for Primary Body Contact Recreation the following limits for bacteria set forth in (c) of this ~~section~~ Section shall apply only during the recreation period of May 1 to September 30. The criteria for Secondary Body Contact Recreation will apply during the remainder of the year.

(c) Compliance with OAC 252:730-5-16 shall be based upon meeting the requirements of one of the options specified in (1) or (2) of this subsection (c) for bacteria. Upon selection of one (1) group or test method, said method shall be used exclusively over the time period prescribed therefore. Provided, where concurrent data exist for multiple bacterial indicators on the same waterbody or waterbody segment, no criteria exceedances shall be allowed for any indicator group.

(1) ~~*Escherichia coli* (*E. coli*):~~ The *E. coli* *E. Coli* geometric mean criterion is 126/100 ml 126 per 100 mL. For swimming advisory and permitting purposes, *E. coli* shall not exceed a monthly geometric mean of 126/100 ml based upon a minimum of not less than five (5) samples collected over a period of not more than thirty (30) days. For swimming advisory and permitting purposes, no sample shall exceed a 75% one-sided confidence level of 235/100 ml in lakes and high use waterbodies and the 90% one-sided confidence level of 406/100 ml in all other Primary Body Contact Recreation beneficial use areas. These values are based upon all samples collected over the recreation period. For purposes of sections 303(d) and 305(b) of the federal Clean Water Act as amended, beneficial use support status shall be assessed using only the geometric mean criterion of 126/100 milliliters compared to the geometric mean of all samples collected over the recreation period. the *E. coli* geometric mean shall not exceed 126 per 100 mL in any 30-day interval. Within the same 30-day interval, there shall be no greater than a ten percent excursion of the statistical threshold value of 406 per 100 mL. These values are based upon all samples collected over the recreation period. For purposes of Sections 303(d) and 305(d) of the Clean Water Act as amended, beneficial use support status shall be assessed using only the geometric mean criterion of 126 per 100 mL compared to the geometric mean of all samples collected over the recreation period.

(2) ~~*Enterococci*:~~ *Enterococci*: The *Enterococci* geometric mean criterion is 33/100 ml. For swimming advisory and permitting purposes, *Enterococci* shall not exceed a monthly geometric mean of 33/100 ml based upon a minimum of not less than five (5) samples collected over a period of not more than thirty (30) days. For swimming advisory and permitting purposes, no sample shall exceed a 75% one-sided confidence level of 61/100 ml in lakes and high use waterbodies and the 90% one-sided confidence level of 108/100 ml in all other Primary Body Contact Recreation beneficial use areas. These values are based upon all samples collected over the recreation period. For purposes of sections 303(d) and 305(b) of the federal Clean Water Act as amended, beneficial use support status shall be assessed using only the geometric mean criterion of 33/100 milliliters compared to the geometric mean of all samples collected over the recreation period. The enterococci geometric mean is 33 per 100 mL, and the statistical threshold value is 108 per 100 mL. For swimming and permitting purposes, the enterococci geometric mean shall not exceed 33 per 100 mL in any 30-day interval. Within the same 30-day interval, there should not be greater than a ten percent excursion of the statistical threshold value of 108 per 100 mL. These values are based upon all samples collected over the recreation period. For purposes of Sections 303(d) and 305(b) of the Clean Water Act as amended, beneficial use support shall be assessed using only the geometric mean criterion of 33 per 100 mL compared to the geometric mean of all samples collected over the recreation period.

252:730-5-17. Secondary Body Contact Recreation

- (a) ~~The water quality requirements for Secondary Body Contact Recreation are usually not as stringent as for Primary Body Contact Recreation. The Secondary Body Contact Recreation beneficial use is designated where ingestion of water is not anticipated. Associated activities may include boating, fishing, or wading.~~
- (b) ~~The Secondary Body Contact Recreation beneficial use is designated where ingestion of water is not anticipated. Secondary Body Contact Recreation criteria are calculated using a ratio of water ingestion during secondary activities compared to primary activities. The criterion was calculated using ingestion numbers for kayaking, the Secondary Body Contact Recreation activity with the highest measured ingestion rate.~~
- (c) ~~Associated activities may include boating, fishing, or wading. *Escherichia coli* (*E. coli*): The *E. coli* geometric mean criterion is 242 per 100 mL, and the statistical threshold value is 781 per 100 mL. For purposes of Sections 303(d) and 305(b) of the Clean Water Act as amended, beneficial use support status shall be assessed using only the geometric mean criterion of 242 per 100 mL compared to the geometric mean of all samples collected.~~
- (d) ~~Waters so designated shall be maintained to be free from human pathogens in numbers which may produce adverse health effects in humans. Enterococci: The enterococci geometric mean is 63 per 100 mL, and the statistical threshold value is 208 per 100 mL. For purposes of Sections 303(d) and 305(b) of the Clean Water Act as amended, beneficial use support status shall be assessed using only the geometric mean criterion of 63 per 100 mL compared to the geometric mean of all samples collected.~~

PART 5. SPECIAL PROVISIONS

252:730-5-25. Implementation policies for the antidegradation policy statement

- (a) The following provisions set forth exceptions to the limitations stated in OAC 252:730-5-25(c) for additional protection of certain waters of the state:
- (1) The limitations contained in OAC 252:730-5-25(c)(1) for additional protection of Outstanding Resource Waters shall apply to all discharges from point sources, except such limitations do not apply to discharges of stormwater from temporary construction activities. Discharges of stormwater from point sources existing as of June 25, 1992, whether or not such stormwater discharges were permitted as point sources prior to June 25, 1992, are also excepted from the OAC 252:730-5-25(c)(1) rule prohibiting any new point source discharges, but such stormwater discharges are prohibited from increased load of any pollutant.
 - (2) The limitations for additional protection of Appendix B Waters (OAC 252:730-5-25(c)(2)), High Quality Waters (OAC 252:730-5-25(c)(3)), Sensitive Public and Private Water Supplies (OAC 252:730-5-25(c)(4)), and SWS-R waterbodies (OAC 252:730-5-25(c)(8)) shall apply to discharges from all point sources except point source discharges of stormwater.
- (b) For purposes of OAC 252:730-5-25, the term "specified pollutants" means:
- (1) Oxygen demanding substances, measured as Carbonaceous Biochemical Oxygen Demand (CBOD) and/or Biochemical Oxygen Demand (BOD);
 - (2) Ammonia Nitrogen and/or Total Organic Nitrogen;
 - (3) Phosphorus;
 - (4) Total Suspended Solids (TSS);
 - (5) Such other substances as may be determined by DEQ.
- (c) The following limitations for additional protection apply to various waters of the state:
- (1) **Outstanding Resource Waters (ORW).**
 - (A) Outstanding Resource Waters (ORW) are those waters of the state which constitute outstanding resources or are of exceptional recreational and/or ecological significance as described in OAC 252:730-3-2(a).
 - (B) The following waterbodies are prohibited from having any new point source discharge(s) of any pollutant or increased load of any pollutant from existing point source discharge(s):
 - (i) Waterbodies designated "ORW" and/or "Scenic River" in Appendix A of this Chapter;
 - (ii) Waterbodies located within the watersheds of waterbodies designated "Scenic River" in Appendix A of this Chapter; and
 - (iii) Waterbodies located within the boundaries of Appendix B areas which are specifically designated "ORW" in Appendix A of this Chapter.
 - (2) **Appendix B Waters.**
 - (A) Appendix B waters are those waters of the state which are located within the boundaries of areas listed in Appendix B of this Chapter, including but not limited to the National and State parks, forests, wilderness areas, wildlife management areas, and wildlife refuges. Appendix B also may include those areas which are inhabited by federally listed, threatened or endangered species, and other appropriate areas.
 - (B) Only those Appendix B waters specifically designated "ORW" in Appendix A of this Chapter shall be afforded the limitations for additional protection described in OAC 252:730-5-25(c)(1)(B).
 - (C) New discharges or increased loading from existing discharges to Appendix B waters may be allowed under such conditions that ensure that the recreational and ecological significance of these waters will be maintained.
 - (D) Discharges or other activities associated with those waters listed in Appendix B, Table 2 containing federally listed threatened or endangered species may be restricted through agreements between appropriate regulatory agencies and the United States Fish and Wildlife Service.
 - (3) **High Quality Waters (HQW).**

(A) High Quality Waters (HQW) are those waters of the state whose historic water quality and physical habitat provide conditions suitable for the support of sensitive and intolerant climax communities of aquatic organisms whether or not that waterbody currently contains such a community, support high levels of recreational opportunity, and are designated "HQW" waters in Appendix A of this Chapter. These waters will generally have higher quality habitat, a more diverse and more intolerant biotic community, and, as a result, may provide more ecological refuges and recreational opportunities than other waters in the same ecoregion with similar chemistry and physical conditions.

(B) All waterbodies designated with the limitation indicated by the letters "HQW" in Appendix A are prohibited from having any new point source discharge(s) of any pollutant or increased load or concentration of specified pollutants from existing point source discharge(s), provided however that new point source discharge(s) or increased load of specified pollutants described in OAC 252:730-5-25(b) may be approved by the permitting authority in those circumstances where the discharger demonstrates to the satisfaction of the permitting authority that a new point source discharge or increased load from an existing point source discharge will result in maintaining or improving the level of water quality which exceeds that necessary to support recreation and propagation of fishes, shellfishes, and wildlife of the direct receiving water and downstream waterbodies designated HQW. As specified in OAC 252:730-3-2(b) and (d), no discharge of any pollutant to a water designated HQW may lower existing water quality.

(C) Waters designated HQW after July 1, 2007 will demonstrate (1) 95% of water quality measurements for multiple parameters from metals, organics, and general physicochemical water quality descriptors better than the promulgated criteria in Appendix G of this ~~chapter~~ Chapter at multiple stations on the segment, (2) an unimpaired biological community as determined by the application of Appendix C of Title 252 Chapter 740, and (3) significant local support for promulgation of the HQW designation.

(4) Sensitive Public and Private Water Supplies (SWS).

(A) Waters designated "SWS" are those waters of the state which constitute sensitive public and private water supplies as a result of their unique physical conditions and are listed in Appendix A of this Chapter as "SWS" waters. These are waters (a) currently used as water supply reservoirs, (b) that generally possess a watershed of less than approximately 100 square miles, or (c) as otherwise designated by DEQ.

(B) New point source discharges of any pollutant after June 11, 1989, and increased load of any specified pollutant from any point source discharge existing as of June 11, 1989, shall be prohibited in any waterbody or watershed designated in Appendix A of this Chapter with the limitation "SWS". Any discharge of any pollutant to a waterbody designated "SWS" which would, if it occurred, lower existing water quality shall be prohibited, provided however that new point source discharge(s) or increased load of specified pollutants described in OAC 252:730-5-25(b) may be approved by the permitting authority in those circumstances where the discharger demonstrates to the satisfaction of the permitting authority that a new point source discharge or increased load from an existing point source discharge will result in maintaining or improving the water quality of both the direct receiving water and any downstream waterbodies designated SWS.

(5) Prioritization of limitations. In situations where more than one beneficial use limitation exists for a waterbody, the more stringent limitation shall apply.

(6) Non-Point source discharges or runoff. Best management practices for control of non-point source discharges or runoff should be implemented in watersheds of waterbodies designated "ORW," "HQW," "SWS," or "SWS-R" in Appendix A of this Chapter and/or located within areas listed in Appendix B provided however that development of conservation plans shall be required in sub-watersheds where discharges or runoff from non-point sources are identified as causing, or significantly contributing to, degradation in a waterbody designated "ORW".

(7) Culturally Significant Waters (CSW).

(A) Waters designated as CSW in Appendix A of this Chapter are those identified by recognized tribal authorities as critical to maintaining the waters' utility for cultural, historic, recreational, or ceremonial uses and which may require more stringent protection measures to protect human health or aquatic life or both.

(B) All activities associated with a CSW may require consultation with the duly authorized Tribal authority to assure that the proposed activity is consistent with applicable tribal environmental laws.

(8) Sensitive Public and Private Water Supplies with Reuse (SWS-R).

(A) Waters designated "SWS-R" are those waters of the state which constitute sensitive public and private water supplies that may be augmented with reclaimed municipal water for the purpose of indirect potable reuse (IPR). SWS-R waterbodies are identified in Appendix A of this Chapter. These are waters currently used as water supply reservoirs, that generally possess a watershed of less than approximately 100 square miles, or as otherwise designated by DEQ.

(B) New point source discharges of any pollutant after June 11, 1989, and increased load of any specified pollutant from any point source discharge existing as of June 11, 1989, shall be prohibited in any waterbody or watershed designated in Appendix A of this Chapter with the limitation "SWS-R" except as outlined in 8(C) below.

(C) New point source municipal wastewater discharges or increased loading from existing point source municipal wastewater discharges to a SWS-R waterbody or watershed shall achieve a minimum level of effluent quality that is attainable using demonstrated treatment technologies or other alternatives. Approaches for required technology-based limitations and/or other alternatives are outlined in OAC 252:740-13-4(e). A discharge to a SWS-R waterbody may be permitted provided:

(i) A determination of the waterbody's assimilative capacity for all applicable narrative and numeric criteria shall be the responsibility of the discharger;

(ii) If assimilative capacity exists for any applicable narrative or numeric criteria, the discharger shall document what portion, if any, of the assimilative capacity is reasonable to maintain. If it is proposed that it is not reasonable to maintain any, or a portion, of the assimilative capacity, a report consistent with all 40 CFR 131.12(a)(2) requirements describing the available assimilative capacity and providing justification for consuming all or a portion of the assimilative capacity shall be submitted by the discharger to DEQ for review;

(iii) DEQ may approve both the determination of assimilative capacity and the proposed consumption of any, or all, of the assimilative capacity if it is found to be necessary based on the aforementioned report and consistent with the requirements described in 40 ~~C.F.R.~~ CFR 131.12(a)(2);

(iv) All existing and designated beneficial uses of the receiving waterbody and downstream waterbodies shall be maintained, and the discharge shall not impair human health even during drought of record conditions.

(D) SWS-R waterbodies, with permitted discharge, shall be technically evaluated by permitted parties at least once every five years to determine the attainment or nonattainment of beneficial uses. Technical evaluation reports, including all data and information necessary to allow independent analysis, shall be submitted to the permitting authority for review. If the report documents nonattainment of a beneficial use(s) resulting from the discharge, the permitting authority shall consider actions including, but not limited to, additional permit requirements, cessation of the discharge, and or a recommendation to DEQ to revoke the SWS-R waterbody classification.

252:730-5-26. Mixing zones and zones of passage

(a) Mixing zones.

(1) In streams, the chronic regulatory mixing zone extends downstream a distance equivalent to thirteen (13) times the width of the water within the receiving stream at the point of effluent discharge and encompasses 25% of the total stream flow of the ~~7Q2-regulatory low flow~~ or 1 cfs, whichever is larger, immediately downstream of the point of effluent discharge.

(2) The acute regulatory mixing zone is encompassed by the $R = 0.01$ (cfs-1) isopleth. R is the ratio of concentration to wasteload.

(3) Acute toxicity within the mixing zone is prohibited.

(4) Mixing zones in lakes shall be designated on a case-by-case basis.

(5) The water quality in a portion of the mixing zone may be unsuitable for certain beneficial uses.

(6) Where overlapping mixing zones occur because of multiple outfalls, the total length of the chronic regulatory mixing zone will extend thirteen (13) stream widths downstream from the downstream discharge point.

(b) Zones of passage.

(1) All discharges permitted for any criteria listed for protection of fish and wildlife propagation shall be regulated to ensure that a zone of passage shall be maintained within the stream at the outfall and adjacent to the mixing zone that shall be no less than seventy-five percent (75%) of the volume of flow.

(2) Water quality standards shall be maintained throughout the zone of passage.

(3) Zones of passage in lakes shall be designated on a case-by-case basis.

SUBCHAPTER 7. GROUNDWATER QUALITY STANDARDS

252:730-7-3. Groundwater classifications, beneficial uses and vulnerability levels

(a) **Classifications.** Classification of all groundwater shall be designated as follows:

(1) **(Class I): RESERVED**

(2) **General Use Groundwater (Class II):** These are groundwaters which have good quality due to natural conditions and generally have a mean concentration of total dissolved solids of less than 3,000 ~~milligrams per liter mg/L~~.

(3) **Limited Use Groundwater (Class III):** These are groundwaters which have poor quality due to natural conditions and generally have a mean concentration of total dissolved solids of greater than or equal to 3000 ~~milligrams per liter mg/L~~ but less than 5000 ~~milligrams per liter mg/L~~.

(4) **Highly Mineralized Treatable Groundwater (Class IV):** These are groundwaters which have very poor quality due to natural conditions and generally have a mean concentration of total dissolved solids of greater than or equal to 5000 ~~milligrams per liter mg/L~~ but less than 10,000 ~~milligrams per liter mg/L~~.

(b) **Beneficial uses.** This subsection lists the various beneficial uses of groundwater and designates certain beneficial uses for certain classifications of groundwater.

(1) List of beneficial uses for groundwater.

(A) **Public Water Supply.** The beneficial use designation of Public Water Supply refers to those groundwaters capable of delivering suitable quantities of groundwater for municipal consumption whether or not treatment is required.

(B) **Domestic Untreated Water Supply.** The beneficial use designation of Domestic Untreated Water Supply refers to those groundwaters capable of delivering suitable quantities of untreated groundwater for domestic consumption.

(C) **Agriculture.** The beneficial use designation of Agriculture refers to that groundwater which is or could be used for irrigation or livestock watering.

(D) **Industrial and Municipal Process and Cooling Water.** The beneficial use designation of Industrial and Municipal Process and Cooling Water refers to that groundwater that is or could be used for a municipal or industrial process or cooling function.

(2) **Beneficial use designations.**

(A) The beneficial uses for General Use Groundwater (Class II), not identified in Appendix H of this Chapter, shall be Domestic Untreated Water Supply, Public Water Supply, Agriculture, and Industrial and Municipal Process and Cooling Water.

(B) The beneficial uses for Limited Use Groundwater (Class III) and Highly Mineralized Treatable Groundwater (Class IV), not identified in Appendix H of this Chapter, shall be Agriculture and Industrial and Municipal Process and Cooling Water.

(C) The beneficial uses for any groundwater identified in Appendix H of this Chapter shall be as designated in that appendix.

(D) The beneficial use for groundwater which is used for water supply purposes on or after July 1, 2000, has a mean concentration of total dissolved solids of less than 5,000 ~~milligrams per liter~~ mg/L, and has not been determined by any state environmental agency to be not suitable for human consumption, shall be Public Water Supply and or Domestic Untreated Water Supply.

(E) A beneficial use designation for groundwater may be amended or removed only after a demonstration to the satisfaction of the Board that meets one of the following tests:

(i) The designated use does not exist due to a condition that was not caused by humans, and treatment using Best Available Technology will not achieve the designated use, or

(ii) The designated use does not exist due to a condition that is attributable to irreversible impacts caused by humans, and the remedy would cause substantial and widespread economic and social impact.

(F) Groundwater which has had a beneficial use designation amended or removed pursuant to (E) of this paragraph shall be identified in Appendix H of this Chapter.

(c) **Vulnerability level.** Groundwater in certain hydrogeologic basins is further classified according to its vulnerability to contamination as determined by DRASTIC. Such vulnerability levels of hydrogeologic basins shall be identified as Very Low, Low, Moderate, High, and Very High as prescribed in Table 1 of Appendix D of this Chapter. The vulnerability level may vary within each hydrogeologic basin, depending on site-specific hydrogeologic factors.

(d) **Nutrient-vulnerable groundwater.** Certain specified groundwaters shall be further subject to designation in Table 2 of Appendix D of this Chapter as nutrient-vulnerable groundwater.

252:730-7-4. Criteria for groundwater quality protection

(a) Groundwaters of the state support many different beneficial uses. The criteria below do not require improvement over naturally occurring background concentrations. When naturally occurring background concentrations exceed the criterion for a given parameter, the naturally occurring background concentration may be utilized as a criterion, if suitable. If a given parameter has more than one criterion associated with it, the most stringent criteria shall apply to ensure beneficial use protection.

(b) The following criteria apply to all groundwaters for the protection of beneficial uses except those groundwaters specifically referenced in OAC 252:730-7-4(c).

(1) The groundwaters of the state shall be maintained to prevent alteration of their chemical properties by harmful substances not naturally found in groundwater.

(2) Protective measures adequate to preserve and protect background quality of the groundwater and existing and designated groundwater basin classifications shall be maintained at all times.

(3) Protective measures shall also be sufficient to minimize the impact of pollutants on groundwater quality.

(4) The concentration of any synthetic substance or any substance not naturally occurring in that location shall not exceed the PQL in an unpolluted groundwater sample using laboratory technology. If the concentration found in the test sample exceeds the PQL, or if other substances in the groundwater are found in concentrations greater than those found in background conditions, that groundwater shall be deemed to be polluted and corrective action may be required.

(c) For artificial aquifer recharge and/or aquifer storage and recovery activities, the criteria below and presented in Tables 1 and 2 of Appendix I shall apply to ensure the protection of beneficial uses, as specified. Artificial recharge and/or aquifer storage and recovery activities shall not cause or contribute to a condition of pollution or nuisance or result in nonattainment of any applicable groundwater quality standard.

(1) **Chemical Constituents.** Groundwaters shall not contain chemical constituents in concentrations that adversely affect any beneficial use. At a minimum, groundwaters with the designated beneficial uses of public water supply and domestic untreated water supply shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels specified in the following provisions:

(A) Organic Contaminants in 40 CFR 141.61(a)

(B) Synthetic Organic Contaminants in 40 CFR 141.61(c)

(C) Inorganic Contaminants in 40 CFR 141.62(b)

(D) Disinfection Byproducts in 40 CFR 141.64

(E) Disinfectants in 40 CFR 141.65(a)

(2) **Toxicity.** Groundwaters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with any beneficial use(s). This criterion applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances or the mobilization and/or transformation of a substance due to changes in physiochemical properties within the aquifer. At a minimum, groundwaters with the designated beneficial uses of public water supply and domestic untreated water supply shall not exceed limits specified in Table 1 of Appendix I of this ~~chapter~~ Chapter.

(3) **Secondary Contaminants.** At a minimum, groundwaters with the designated beneficial uses of public water supply and domestic untreated water supply shall not exceed the criteria limits presented in Table 2 of Appendix I of this ~~chapter~~ Chapter and consistent with 40 CFR 143.3.

(4) **Microorganisms.** Groundwaters with the designated beneficial uses of public water supply and domestic untreated water supply microorganisms shall not exceed the limits specified in 40 CFR 141.63 and 40 CFR 141.70-73.

(5) **Taste and Odor.** Groundwaters shall be free from taste and odor producing substances in concentrations that cause nuisance or adversely affect any beneficial use.

(6) **Radioactivity.** At a minimum, groundwaters with the designated beneficial uses of public water supply and domestic untreated water supply shall not contain concentrations of radionuclides in excess of limits specified in 40 CFR 141.66.

(7) **Geochemical and Physical Composition.** The geochemical and physical composition of groundwaters shall not be altered such that mobilization of any introduced or in-situ contaminants, natural or non-natural, occurs and impairs any beneficial use.

(8) **Minerals.** Increased mineralization, in comparison to existing water quality, from elements such as, but not limited to, calcium, magnesium, sodium, and their associated anions shall not impair any beneficial use.

(d) Measures to prevent noncompliance with this Section caused by any person, or activity, shall be the responsibility of each state environmental agency within its jurisdictional areas of environmental responsibility. Such measures shall be prescribed in the Water Quality Standards Implementation Plan of each such agency. When regulating activities that have the potential to contaminate groundwater from the surface, the vulnerability level of an affected hydrogeologic basin (for example, more stringent measures such as siting limitations, lagoon liners, or additional monitoring wells may be required to protect groundwater in hydrogeologic basins with High or Very High vulnerability levels) shall be considered. When regulating groundwater quality activities that have the potential to cause or contribute to impairment of a surface water beneficial use, provisions to prevent the impairment of any surface water beneficial use shall be included.

APPENDIX A. DESIGNATED BENEFICIAL USES OF SURFACE WATERS