§ R18-11-101. Definitions

The following terms apply to this Article:

1. "Acute toxicity" means toxicity involving a stimulus severe enough to induce a rapid response. In aquatic toxicity tests, an effect observed in 96 hours or less is considered acute.

2. "Agricultural irrigation (AgI)" means the use of a surface water for crop irrigation.

3. "Agricultural livestock watering (AgL)" means the use of a surface water as a water supply for consumption by livestock.

4. "Annual mean" is the arithmetic mean of monthly values determined over a consecutive 12-month period, provided that monthly values are determined for at least three months. A monthly value is the arithmetic mean of all values determined in a calendar month.

5. "Aquatic and wildlife (cold water) (A&Wc)" means the use of a surface water by animals, plants, or other cold-water organisms, generally occurring at an elevation greater than 5000 feet, for habitation, growth, or propagation.

6. "Aquatic and wildlife (effluent-dependent water) (A&Wedw)" means the use of an effluent-dependent water by animals, plants, or other organisms for habitation, growth, or propagation.

7. "Aquatic and wildlife (ephemeral) (A&We)" means the use of an ephemeral water by animals, plants, or other organisms, excluding fish, for habitation, growth, or propagation.

8. "Aquatic and wildlife (warm water) (A&Ww)" means the use of a surface water by animals, plants, or other warm-water organisms, generally occurring at an elevation less than 5000 feet, for habitation, growth, or propagation.

9. "Arizona Pollutant Discharge Elimination System (AZPDES)" means the point source discharge permitting program established under 18 A.A.C. 9, Article 9.

10. "Assimilative capacity" means the difference between the baseline water quality concentration for a pollutant and the most stringent applicable water quality criterion for that pollutant.

11. "Clean Water Act" means the Federal Water Pollution Control Act [33 U.S.C. 1251 to 1387] .

12. "Complete Mixing" means the location at which concentration of a pollutant across a transect of a surface water differs by less than five percent.

13. "Criteria" means elements of water quality standards that are expressed as pollutant concentrations, levels, or narrative statements representing a water quality that supports a designated use.

14. "Critical flow conditions of the discharge" means the hydrologically based discharge flow averages that the director uses to calculate and implement applicable water quality criteria to a mixing zone's receiving water as follows:

a. For acute aquatic water quality standard criteria, the discharge flow critical condition is represented by the maximum one-day average flow analyzed over a reasonably representative timeframe.

b. For chronic aquatic water quality standard criteria, the discharge flow critical flow condition is represented by the maximum monthly average flow analyzed over a reasonably representative timeframe.

c. For human health based water quality standard criteria, the discharge flow critical condition is the long-term arithmetic mean flow, averaged over several years so as to simulate long-term exposure.

15. "Critical flow conditions of the receiving water" means the hydrologically based receiving water low flow averages that the director uses to calculate and implement applicable water quality criteria:

a. For acute aquatic water quality standard criteria, the receiving water critical condition is represented as the lowest one-day average flow event expected to occur once every ten years, on average (1Q10).

b. For chronic aquatic water quality standard criteria, the receiving water critical flow condition is represented as the lowest seven-consecutive-day average flow expected to occur once every 10 years, on average (7Q10), or

c. For human health based water quality standard criteria, in order to simulate long-term exposure, the receiving water critical flow condition is the harmonic mean flow.

16. "Deep lake" means a lake or reservoir with an average depth of more than 6 meters.

17. "Designated use" means a use specified in Appendix B of this Article for a surface water.

18. "Domestic water source (DWS)" means the use of a surface water as a source of potable water. Treatment of a surface water may be necessary to yield a finished water suitable for human consumption.

19. "Effluent-dependent water (EDW)" means a surface water, classified under R18-11-113 that consists of a point source discharge of wastewater. An effluent-dependent water is a surface water that, without the point source discharge of wastewater, would be an ephemeral water.

20. "Ephemeral water" means a surface water that has a channel that is at all times above the water table and flows only in direct response to precipitation.

21. "Existing use" means a use attained in the waterbody on or after November 28, 1975, whether or not it is included in the water quality standards.

22. "Fish consumption (FC)" means the use of a surface water by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, clams, turtles, crayfish, and frogs.

23. "Full-body contact (FBC)" means the use of a surface water for swimming or other recreational activity that causes the human body to come into direct contact with the water to the point of complete submergence. The use is such that ingestion of the water is likely and sensitive body organs, such as the eyes, ears, or nose, may be exposed to direct contact with the water.

24. "Geometric mean" means the nth root of the product of n items or values. The geometric mean is calculated using the following formula:

25. "Hardness" means the sum of the calcium and magnesium concentrations, expressed as calcium carbonate ($CaCO_3$) in milligrams per liter.

26. "Igneous lake" means a lake located in volcanic, basaltic, or granite geology and soils.

27. "Intermittent water" means a stream or reach that flows continuously only at certain times of the year, as when it receives water from a spring or from another surface source, such as melting snow.

28. "Mixing zone" means an area or volume of a surface water that is contiguous to a point source discharge where dilution of the discharge takes place.

29. "Oil" means petroleum in any form, including crude oil, gasoline, fuel oil, diesel oil, lubricating oil, or sludge.

30. "Outstanding Arizona water (OAW)" means a surface water that is classified as an outstanding state resource water by the Director under R18-11-112.

31. "Partial-body contact (PBC)" means the recreational use of a surface water that may cause the human body to come into direct contact with the water, but normally not to the point of complete submergence (for example, wading or boating). The use is such that ingestion of the water is not likely and sensitive body organs, such as the eyes, ears, or nose, will not normally be exposed to direct contact with the water.

32. "Perennial water" means a surface water that flows continuously throughout the year.

33. *"Pollutant" means fluids, contaminants, toxic wastes, toxic pollutants, dredged spoil, solid waste, substances and chemicals, pesticides, herbicides, fertilizers and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and mining, industrial, municipal, and agricultural wastes or any other liquid, solid, gaseous, or hazardous substance.* A.R.S § 49-201(29)

34. "Pollutant Minimization Program" means a structured set of activities to improve processes and pollutant controls that will prevent and reduce pollutant loadings.

35. "Practical quantitation limit" means the lowest level of quantitative measurement that can be reliably achieved during a routine laboratory operation.

36. "Reference condition" means a set of abiotic physical stream habitat, water quality, and site selection criteria established by the Director that describe the typical characteristics of stream sites in a region that are least disturbed by environmental stressors. Reference biological assemblages of macro invertebrates and algae are collected from these reference condition streams for calculating the Arizona Indexes of Biological Integrity thresholds.

37. "Regional Administrator" means the Regional Administrator of Region IX of the U.S. Environmental Protection Agency.

38. "Regulated discharge" means a point-source discharge regulated under an AZPDES permit, a discharge regulated by a § 404 permit, and any discharge authorized by a federal permit or license that is subject to state water quality certification under § 401 of the Clean Water Act.

39. "Riffle habitat" means a stream segment where moderate water velocity and substrate roughness produce moderately turbulent conditions that break the surface tension of the water and may produce breaking wavelets that turn the surface water into white water.

40. "Run habitat" means a stream segment where there is moderate water velocity that does not break the surface tension of the water and does not produce breaking wavelets that turn the surface water into white water.

41. "Sedimentary lake" means a lake or reservoir in sedimentary or karst geology and soils.

42. "Shallow lake" means a lake or reservoir, excluding an urban lake, with a smaller, flatter morphology and an average depth of less than 3 meters and a maximum depth of less than 4 meters.

43. "Significant degradation" means:

a. The consumption of 20 percent or more of the available assimilative capacity for a pollutant of concern at critical flow conditions, or

b. Any consumption of assimilative capacity beyond the cumulative cap of 50 percent of assimilative capacity.

44. "Surface water" means

"Navigable waters" as defined in A.R.S. § 49-201(22).

45. "Total nitrogen" means the sum of the concentrations of ammonia (NH_3), ammonium ion (NH_4+), nitrite (NO_2), and nitrate (NO_3), and dissolved and particulate organic nitrogen expressed as elemental nitrogen.

46. "Total phosphorus" means all of the phosphorus present in a sample, regardless of form, as measured by a persulfate digestion procedure.

47. "Toxic" means a pollutant or combination of pollutants, that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism, either directly from the environment or indirectly by ingestion

through food chains, may cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in the organism or its offspring.

48. "Urban lake" means a manmade lake within an urban landscape.

49. "Use attainability analysis" means a structured scientific assessment of the factors affecting the attainment of a designated use including physical, chemical, biological, and economic factors.

50. "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 variance.

51. "Wadeable" means a surface water can be safely crossed on foot and sampled without a boat.

52. "Wastewater" does not mean:

a. Stormwater,

b. Discharges authorized under the De Minimus General Permit,

c. Other allowable non-stormwater discharges permitted under the Construction General Permit or the Multi-sector General Permit, or

d. Stormwater discharges from a municipal storm sewer system (MS4) containing incidental amounts of non-stormwater that the MS4 is not required to prohibit.

53. "Wetland" means an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. A wetland includes a swamp, marsh, bog, cienega, tinaja, and similar areas.

54. "Zone of initial dilution" means a small area in the immediate vicinity of an outfall structure in which turbulence is high and causes rapid mixing with the surrounding water.

(Former Section R9-21-101 repealed, new Section R9-21-101 adopted effective January 29, 1980 (Supp. 80-1). Amended effective April 17, 1984 (Supp. 84-2). Amended effective January 7, 1985 (Supp. 85-1). Amended by adding subsection (C) effective August 12, 1986 (Supp. 86-4). Former Section R9-21-101 renumbered without change as Section R18-11-101 (Supp.

87-3). Former Section R18-11-101 repealed, new Section R18-11-101 adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Deleted first definition to R18-11-101(32) "Navigable Water", previously printed in error (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 9 A.A.R. 716, effective April 8, 2003 (Supp. 03-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-102. Applicability

A. The water quality standards prescribed in this Article apply to surface waters.

B. The water quality standards prescribed in this Article do not apply to the following:

1. A waste treatment system, including an impoundment, pond, lagoon, or constructed wetland that is a part of the waste treatment system;

2. A man-made surface impoundment and any associated ditch and conveyance used in the extraction, beneficiation, or processing of metallic ores that is not a surface water or is located in an area that once was a surface water but is no longer a surface water because it has been and remains legally converted, including:

a. A pit,

b. Pregnant leach solution pond,

c. Raffinate pond,

d. Tailing impoundment,

e. Decant pond,

f. Pond or a sump in a mine pit associated with dewatering activity,

g. Pond holding water that has come into contact with a process or product and that is being held for recycling,

h. Spill or upset catchment pond, or

i. A pond used for onsite remediation;

3. A man-made cooling pond that is neither created in a surface water nor results from the impoundment of a surface water; or

4. A surface water located on tribal lands.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-103. Repealed

(Adopted effective February 18, 1992 (Supp. 92-1). Repealed effective April 24, 1996 (Supp. 96-2).)

§ R18-11-104. Designated Uses

A. The Director shall adopt or remove a designated use or subcategory of a designated use by rule.

B. Designated uses of a surface water may include full-body contact, partial-body contact, domestic water source, fish consumption, aquatic and wildlife (cold water), aquatic and wildlife (warm water), aquatic and wildlife (ephemeral), aquatic and wildlife (effluent-dependent water), agricultural irrigation, and agricultural livestock watering. The designated uses for specific surface waters are listed in Appendix B of this Article.

C. Numeric water quality criteria to maintain and protect water quality for the designated uses are prescribed in Appendix A, R18-11-109, R18-11-110, and R18-11-112. Narrative water quality standards to protect all surface waters are prescribed in R18-11-108.

D. If a surface water has more than one designated use listed in Appendix B, the most stringent water quality criterion applies.

E. The Director shall revise the designated uses of a surface water if water quality improvements result in a level of water quality that permits a use that is not currently listed as a designated use in Appendix B.

F. In designating uses of a surface water and in establishing water quality criteria to protect the designated uses, the Director shall take into consideration the applicable water quality standards for downstream surface waters and shall ensure that the water quality standards that are established for an upstream surface water also provide for the attainment and maintenance of the water quality standards of downstream surface waters.

G. A use attainability analysis shall be conducted prior to removal of a designated use or adoption of a subcategory of a designated use that requires less stringent water quality criteria.

H. The Director may remove a designated use or adopt a subcategory of a designated use that requires less stringent water quality criteria, provided the designated use is not an existing use and it is demonstrated through a use attainability analysis that attaining the designated use is not feasible for any of the following reasons:

1. A naturally-occurring pollutant concentration prevents the attainment of the use;

2. A natural, ephemeral, intermittent, or low-flow condition or water level prevents the attainment of the use;

3. A human-caused condition or source of pollution prevents the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;

4. A dam, diversion, or other type of hydrologic modification precludes the attainment of the use, and it is not feasible to restore the surface water to its original condition or to operate the modification in a way that would result in attainment of the use;

5. A physical condition related to the natural features of the surface water, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, precludes attainment of an aquatic life designated use; or

6. Controls more stringent than those required by § 301 (b) and § 306 of the Clean Water Act [33 U.S.C. § 1311 and § 1316] are necessary to attain the use and implementation of the controls would result in substantial and widespread economic and social impact.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1).)

§ R18-11-105. Tributaries; Designated Uses

The following water quality standards apply to a surface water that is not listed in Appendix B but that is a tributary to a listed surface water.

1. The aquatic and wildlife (ephemeral) and partial-body contact standards apply to an unlisted tributary that is an ephemeral water.

2. The aquatic and wildlife (cold water), full-body contact, and fish consumption standards apply to an unlisted tributary that is a perennial or intermittent surface water and is above 5000 feet in elevation.

3. The aquatic and wildlife (warm water), full-body contact, and fish consumption standards apply to an unlisted tributary that is a perennial or intermittent surface water and is below 5000 feet in elevation.

(Adopted effective April 24, 1996 (Supp. 96-2). Section heading amended per instructions of the Department of Environmental Quality, August 9, 1996 (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1).)

§ R18-11-106. Net Ecological Benefit

A. The Director may, by rule, modify a water quality standard on the ground that there is a net ecological benefit associated with the discharge of effluent to support or create a riparian and aquatic habitat in an area where water resources are limited. The Director may modify a water quality standard for a pollutant if it is demonstrated that:

1. The discharge of effluent creates or supports an ecologically valuable aquatic, wetland, or riparian ecosystem in an area where these resources are limited;

2. The ecological benefits associated with the discharge of effluent under a modified water quality standard exceed the environmental costs associated with the elimination of the discharge of effluent;

3. The cost of treatment to achieve compliance with a water quality standard is so high that it is more cost effective to eliminate the discharge of effluent to the surface water. The discharger shall demonstrate that it is feasible to eliminate the discharge of effluent that creates or supports the ecologically valuable aquatic, wetland, or riparian ecosystem;

4. The discharge of effluent to the surface water will not cause or contribute to a violation of a water quality standard that has been established for a downstream surface water;

5. All practicable point source discharge control programs, including local pretreatment, waste minimization, and source reduction programs are implemented; and

6. The discharge of effluent does not produce or contribute to the concentration of a pollutant in the tissues of aquatic organisms or wildlife that is likely to be harmful to humans or wildlife through food chain concentration.

B. The Director shall not modify a water quality criterion for a pollutant to be less stringent than a technology-based effluent limitation that applies to the discharge of that effluent. The discharge of effluent shall, at a minimum, comply with applicable technology-based effluent limitations.

(Adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016.)

§ R18-11-107. Antidegradation

A. The Director shall, using R18-11-107.01 and this Section, determine whether there is degradation of water quality in a surface water on a pollutant-by-pollutant basis.

B. Tier 1: The level of water quality necessary to support an existing use shall be maintained and protected. No degradation of existing water quality is permitted in a surface water where the existing water quality does not meet the applicable water quality standards.

C. Tier 2: Where existing water quality in a surface water is better than the applicable water quality standard the existing water quality shall be maintained and protected. The Director may allow degradation of existing water quality in the surface water, if the Director makes all of the following findings:

1. The water quality necessary for existing uses is fully protected and water quality is not lowered to a level that does not comply with applicable water quality standards,

2. The highest statutory and regulatory requirements for new and existing point sources are achieved,

3. All cost-effective and reasonable best management practices for nonpoint source pollution control are implemented, and

4. Allowing lower water quality is necessary to accommodate important economic or social development in the area where the surface water is located.

D. Tier 3: Existing water quality shall be maintained and protected in a surface water that is classified as an OAW under R18-11-112. Degradation of an OAW under subsection (C) is prohibited.

E. The Director shall implement this Section in a manner consistent with § 316 of the Clean Water Act [33 U.S.C. 1326] if a potential water quality impairment associated with a thermal discharge is involved.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-107.01. Antidegradation Criteria

A. Tier 1 antidegradation protection.

1. Tier 1 antidegradation protection applies to the following surface waters:

a. A surface water listed on the 303(d) list for the pollutant that resulted in the listing,

b. An effluent dependent water,

c. An ephemeral water,

d. An intermittent water, and

e. A canal listed in Appendix B.

2. A regulated discharge shall not cause a violation of a surface water quality standard or a wasteload allocation in a total maximum daily load approved by EPA.

3. Except as provided in subsections (E) and (F), Tier 1 antidegradation review requirements are satisfied for a point-source discharge regulated under an individual AZPDES permit to an ephemeral water, effluent dependent water, intermittent water, or a canal listed in Appendix B, if water quality-based effluent limitations designed to achieve compliance with applicable surface water quality standards are established in the permit and technology-based requirements of the Clean Water Act for the point source discharge are met.

B. Tier 2 antidegradation protection.

1. Tier 2 antidegradation protection applies to a perennial water with existing water quality that is better than applicable water quality standards. A perennial water that is not listed in subsection (A)(1) nor classified as an OAW under A.A.C. R18-9-112(G) has Tier 2 antidegradation protection for all pollutants of concern.

2. A regulated discharge that meets the following criteria, at critical flow conditions, does not cause significant degradation:

a. The regulated discharge consumes less than 20 percent of the available assimilative capacity for each pollutant of concern, and

b. At least 50 percent of the assimilative capacity for each pollutant of concern remains available in the surface water for each pollutant of concern.

3. Antidegradation review. Any person proposing a new or expanded regulated discharge under an individual AZPDES permit that may cause significant degradation shall provide ADEQ with the following information:

a. Baseline characterization. A person seeking authorization to discharge under an individual AZPDES permit to a perennial water shall provide baseline water quality data on pollutants of concern where no data exists or there are insufficient data to characterize baseline water quality and to determine available assimilative capacity. A discharger shall characterize baseline water quality at a location upstream of the proposed discharge location;

b. Alternative analysis.

i. The person seeking authorization for the discharge shall prepare and submit a written analysis of alternatives to the discharge. The analysis shall provide information on all reasonable, cost-effective, less-degrading or non-degrading discharge alternatives. Alternatives may include wastewater treatment process changes or upgrades, pollution prevention measures, source reduction, water reclamation, alternative discharge locations, groundwater recharge, land application or treatment, local pretreatment programs, improved operation and maintenance of existing systems, seasonal or controlled discharge to avoid critical flow conditions, and zero discharge;

ii. The alternatives analysis shall include cost information on base pollution control measures associated with the regulated discharge and cost information for each alternative;

iii. The person shall implement the alternative that is cost-effective and reasonable, results in the least degradation, and is approved by the Director. An alternative is cost-effective and reasonable if treatment costs associated with the alternative are less than a 10 percent increase above the cost of base pollution control measures;

iv. For purposes of this subsection, "base pollution control measures" are water pollution control measures required to meet technology-based requirements of the Clean Water Act and water quality-based effluent limits designed to achieve compliance with applicable water quality standards; and

c. Social and economic justification. The person shall demonstrate to the Director that significant degradation is necessary to accommodate important economic or social development in the local area. The person seeking authorization for the discharge shall prepare a written social and economic justification that includes a description of the following:

i. The geographic area where significant degradation of existing water quality will occur;

ii. The current baseline social and economic conditions in the local area;

iii. The net positive social and economic effects of development associated with the regulated discharge and allowing significant degradation;

iv. The negative social, environmental, and economic effects of allowing significant degradation of existing water quality; and

v. Alternatives to the regulated discharge that do not significantly degrade water quality yet may yield comparable social and economic benefits.

4. For purposes of this Section, the term "pollutant of concern" means a pollutant with either a numeric or narrative water quality standard.

5. Public participation. The Director shall provide public notice and an opportunity to comment on an antidegradation review under subsection (B)(3) and shall provide an opportunity for a public hearing under A.A.C. R18-9-A908(B).

C. Tier 3 antidegradation protection.

1. Tier 3 antidegradation protection applies only to an OAW listed in R18-11-112(G).

2. A new or expanded point-source discharge directly to an OAW is prohibited.

3. A person seeking authorization for a regulated discharge to a tributary to, or upstream of, an OAW shall demonstrate in a permit application or in other documentation submitted to ADEQ that the regulated discharge will not degrade existing water quality in the downstream OAW

4. A discharge regulated under a § 404 permit that may affect existing water quality of an OAW requires a determination by the Director to ensure that existmg water quality is maintained and protected and any water quality impacts are temporary. Temporary water quality impacts are those impacts that occur for a period of six months or less and are not regularly occurring The form of such a determination shall be as follows:

a. For Corps-issued § 404 permits, an individual § 401 water quality certification.

b. For Director-issued § 404 permits, a § 404 permit action, wherein the Director shall conduct a water quality evaluation as a part of the state's requirements for issuing § 404 permits and in accordance with this section.

D. Antidegradation review of a § 404 permit shall be conducted as follows:

1. For a Corps-issued § 404 pemit. The Director shall conduct the antidegradation review of any discharge authorized under a nationwide or regional § 404 permit as part of the § 401 water quality certification prior to issuance of the nationwide or regional permit. The Director shall conduct the antidegradation review of an individual § 404 permit if the discharge may degrade existing water quality in an OAW or a water listed on the 303(d) List of impaired waters. For regulated discharges that may degrade water quality in an OAW or a water that is on the 303(d) List of impaired waters, the Director shall conduct the antidegradation review as part of the § 401 water quality certification process.

2. For a Director-issued § 404 permit. The Director shall conduct the antidegradation review of any discharge authorized under a general § 404 permit as a part of its determination whether to issue a general permit in accordance with state requirements for issuing a § 404 general pemit and with this section. The Director shall conduct the antidegradation review of an individual § 404 permit as part of the § 404 permit action in accordance with state requirements for issuing a § 404 permit and in accordance with this section.

E. Antidegradation review of an AZPDES stormwater permit. An individual stormwater permit for a municipal separate storm sewer system (MS4) meets antidegradation requirements if the permittee complies with the pemit, including developing a stormwater management plan containing controls that reduce the level of pollutants in stormwater discharges to the maximum extent practicable.

F. Antidegradation review of a general permit. The Director shall conduct the antidegradation review of a regulated discharge authorized by a general permit at the time the general permit is issued or renewed. A person seeking authorization to discharge under a general permit is not required to undergo an individual antidegradation review at the time the Notice of Intent is submitted unless the discharge may degrade existing water quality in an OAW or a water listed on the 303(d) List of impaired waters.

(New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-108. Narrative Water Quality Standards

A. A surface water shall not contain pollutants in amounts or combinations that:

1. Settle to form bottom deposits that inhibit or prohibit the habitation, growth, or propagation of aquatic life;

2. Cause objectionable odor in the area in which the surface water is located;

3. Cause off-taste or odor in drinking water;

4. Cause off-flavor in aquatic organisms;

5. Are toxic to humans, animals, plants, or other organisms;

6. Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses;

7. Cause or contribute to a violation of an aquifer water quality standard prescribed in R18-11-405 or R18-11-406; or

8. Change the color of the surface water from natural background levels of color.

B. A surface water shall not contain oil, grease, or any other pollutant that floats as debris, foam, or scum; or that causes a film or iridescent appearance on the surface of the water; or that causes a deposit on a shoreline, bank, or aquatic vegetation. The discharge of lubricating oil or gasoline associated with the normal operation of a recreational watercraft is not a violation of this narrative standard.

C. A surface water shall not contain a discharge of suspended solids in quantities or concentrations that interfere with the treatment processes at the nearest downstream potable water treatment plant or substantially increase the cost of handling solids produced at the nearest downstream potable water treatment plant.

D. A surface water shall not contain solid waste such as refuse, rubbish, demolition or construction debris, trash, garbage, motor vehicles, appliances, or tires.

E. A wadeable, perennial stream shall support and maintain a community of organisms having a taxa richness, species composition, tolerance, and

functional organization comparable to that of a stream with reference conditions in Arizona.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-108.01. Narrative Biological Criteria for Wadeable, Perennial Streams

A. The narrative biological criteria in this Section apply to a wadeable, perennial stream with either an aquatic and wildlife (cold water) or an aquatic and wildlife (warm water) designated use.

B. The biological standard in R18-11-108(E) is met when a bioassessment result, as measured by the Arizona Index of Biological Integrity (IBI), for cold or warm water is:

1. Greater than or equal to the 25th percentile of reference condition, or

2. Greater than the 10th percentile of reference condition and less than the 25th percentile of reference condition and a verification bioassessment result is greater than or equal to the 25th percentile of reference condition.

C. Arizona Index of Biological Integrity (IBI) scores:

Bioassessment Result	Index of Biological Integrity Scores	
	A&Wc	A&Ww
Greater than or equal to the 25th percentile of reference condition	>=52	>=50
Greater than the 10th and less than the 25th percentile of reference condition	46 - 51	40 - 49

(New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-108.02. Narrative Bottom Deposit Criteria for Wadeable, Perennial Streams

A. The narrative bottom deposit criteria in this Section apply to wadeable, perennial streams with an aquatic and wildlife (cold water) or an aquatic and wildlife (warm water) designated use.

B. The narrative water quality standard for bottom deposits at R18-11-108(A)(1) is met when:

1. The percentage of fine sediments in the riffle habitats of a wadeable, perennial stream with an A&Wc designated use, as determined by a riffle pebble count, is less than or equal to 30 percent.

2. The percentage of fine sediments in all stream habitats of a wadeable, perennial stream with an A&Ww designated use, as determined by a reach level pebble count, is equal to or less than 50 percent.

(New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-108.03. Narrative Nutrient Criteria for Lakes and Reservoirs

A. The narrative nutrient criteria in this Section apply to those lakes and reservoirs categorized in Appendix B.

B. The narrative water quality standard for nutrients at R18-11-108(A)(6) is met when, based on a minimum of two lake sample events conducted during the peak season based on lake productivity, the results show an average chlorophyll-a value below the applicable threshold for designated use and lake and reservoir category in subsection (D).

1. The mean chlorophyll-a concentration is less than the lower value in the target range chlorophyll-a for the lake and reservoir category, or

2. The mean chlorophyll-a concentration is within the target range for the lake and reservoir category and:

a. The mean blue green algae count is at or below 20, 000 per milliliter, and

b. The blue green algae count is less than 50 percent of the total algae count, and

c. There is no evidence of nutrient-related impairments such as:

i. An exceedance of dissolved oxygen or pH standards;

ii. A fish kill coincident with a dissolved oxygen or pH exceedance;

iii. A fish kill or other aquatic organism mortality coincident with algal toxicity;

iv. Secchi depth is less than the lower value prescribed for the lake and reservoir category;

v. A nuisance algal bloom is present in the limnetic portion of the lake or reservoir; or

vi. The concentration of total phosphorous, total nitrogen, or total Kjehldal nitrogen (TKN) is greater than the upper value in the range prescribed for the lake and reservoir category; or

3. For a shallow lake. In addition to meeting the mean chlorophyll-a concentrations in subsections (B)(1) or (2), submerged aquatic vegetation covers 50 percent or less of the lake bottom and there is less than a 5 mg/L swing in diel-dissolved oxygen concentration measured within the photic zone.

C. The following threshold ranges apply during the peak season for lake productivity:

1. Warm water lakes peak season, April - October;

2. Cold water lakes peak season, May - September.

D. The following table lists the numeric targets for lakes and reservoirs.

NUMERIC TARGETS FOR LAKES AND RESERVOIRS

Designated Use	Lake Category	Chl-a (µg/L)	Secchi Depth (m)	Total Phosphorus (µg/L)	Total Nitrogen (mg/L)	Total Kjehldal Nitrogen (TKN) (mg/L)	Blue-Green Algae (per ml)	Blue-Green Algae (% of total count)	Dissolved Oxygen (mg/L)	pH (SU)
FBC and PBC	Deep	10-15	1.5-2.5	70-90	1.2-1.4	1.0-1.1	20,000			6.5-9.0
	Shallow	10-15	1.5-2.0	70-90	1.2-1.4	1.0-1.1				
	Igneous	20-30	0.5-1.0	100-125	1.5-1.7	1.2-1.4				
	Sedimentary	20-30	1.5-2.0	100-125	1.5-1.7	1.2-1.4				
	Urban	20-30	0.5-1.0	100-125	1.5-1.7	1.2-1.4				
A&Wc	All	5-15	1.5-2.0	50-90	1.0-1.4	0.7-1.1		<50	7 (top m)	6.5-9.0
A&Ww	All (except urban lakes)	25-40	0.8-1.0	115-140	1.6-1.8	1.3-1.6			6 (top m)	
	Urban	30-50	0.7-1.0	125-160	1.7-1.9	1.4-1.7				
A&Wedw	All	30-50	0.7-1.0	125-160	1.7-1.9	1.4-1.7				6.5-9.0
DWS	All	10-20	0.5-1.5	70-100	1.2-1.5	1.0-1.2	20,000			5.0-9.0

(New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-109. Numeric Water Quality Standards

A. *E. coli* bacteria. The following water quality standards for *Escherichia coli (E coli)* are expressed in colony forming units per 100 milliliters of water (cfu / 100 ml) or as a Most Probable Number (MPN):

E. coli	**FBC**	**PBC**
Geometric mean (minimum of four samples in 30 days)	126	126
Statistical threshold value	410	576

B. pH. The following water quality standards for pH are expressed in standard units:

pH	**DWS**	**FBC, PBC, A&W [1]**	**AgI**	**AgL**
Maximum	9.0	9.0	9.0	9.0
Minimum	5.0	6.5	4.5	6.5

Footnotes:

1. "[1]" Includes A&Wc, A&Ww, A&Wedw, and A&We.

C. The maximum allowable increase in ambient water temperature, due to a thermal discharge is as follows:

A&Ww	**A&Wedw**	**A&Wc**
3.0° C	3.0° C	1.0° C

D. Suspended sediment concentration.

1. The following water quality standards for suspended sediment concentration, expressed in milligrams per liter (mg/L), are expressed as a median value determined from a minimum of four samples collected at least seven days apart:

A&Wc	**A&Ww**
25	80

2. The Director shall not use the results of a suspended sediment concentration sample collected during or within 48 hours after a local storm event to determine the median value.

E. Dissolved oxygen. A surface water meets the water quality standard for dissolved oxygen when either:

1. The percent saturation of dissolved oxygen is equal to or greater than 90 percent, or

2. The single sample minimum concentration for the designated use, as expressed in milligrams per liter (mg/L) is as follows:

Designated Use	**Single sample minimum concentration in mg/L**
A&Ww	6.0
A&Wc	7.0
A&W edw for a sample taken from three hours after sunrise to sunset	3.0
A&W edw for a sample taken from sunset to three hours after sunrise	1.0

The single sample minimum concentration is the same for the designated use in a lake, but the sample must be taken from a depth no greater than one meter.

F. Nutrient criteria. The following are water quality standards for total phosphorus and total nitrogen (expressed in milligrams per liter (mg/L)) that apply to the surface waters listed below. A minimum of 10 samples, each taken at least 10 days apart in a consecutive 12-month period, are required to determine a 90th percentile. Not more than 10 percent of the samples may exceed the 90th percentile value listed below. The Director will apply these water quality standards for total phosphorus and total nitrogen to the surface waters listed below, and to their perennial tributaries, if listed. The Director may also apply these total phosphorus and total nitrogen standards to any source discharging to any tributary (ephemeral, intermittent, effluent dependent water, or perennial) of the surface waters listed below, if necessary to protect nutrient water quality in the listed surface water, based on the volume, frequency, magnitude and duration of the discharge, and distance to the downstream surface water listed below:

1. Verde River and its perennial tributaries from the Verde headwaters to Bartlett Lake:

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.10	0.30	1.00
Total nitrogen	1.00	1.50	3.00

2. Black River, Tonto Creek and their perennial tributaries for any segments that are not located on tribal lands:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.10	0.20	0.80
Total nitrogen	0.50	1.00	2.00

3. Salt River and its perennial tributaries above Roosevelt Lake for any segments that are not located on tribal lands:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.12	0.30	1.00
Total nitrogen	0.60	1.20	2.00

4. Salt River below Stewart Mountain Dam to its confluence with the Verde River:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.05	-	0.20
Total nitrogen	0.60	-	3.00

5. Little Colorado River and its perennial tributaries upstream from:

a. The headwaters to River Reservoir,

b. South Fork of Little Colorado River at 34°00'49"/109°24'18" to above South Fork Campground at 34°04'49'7109°24'18", and

c. The headwaters of Water Canyon Creek to the Apache-Sitgreaves National Forest boundary:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.08	0.10	0.75
Total nitrogen	0.60	0.75	1.10

6. From the Little Colorado River and State Route 260 at 34°06'39'7109°18'55" to Lyman Lake:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum
Total phosphorus	0.20	0 30	0.75
Total nitrogen	0.70	120	1.50

7. Colorado River at the Northern International Boundary near Morelos Dam:

Surface Water	Annual Mean	90th Percentile	Single Sample Maximum

Total phosphorus	-	0.33	-
Total nitrogen	-	2.50	-

8. Oak Creek from its headwaters at 35°0r30"/lll°44'12" to its confluence with the Verde River and the West Fork of Oak Creek from its headwaters at 35°02'447111°54'48" to its confluence with Oak Creek.

Surface Water	**Annual Mean**	**90th Percentile**	**Single Sample Maximum**
Total phosphorus	0.1	0.25	0.30
Total nitrogen	1.00	1.50	2.50

9. No discharge of wastewater to Show Low Creek or its perennial tributaries upstream of and including Fools Hollow Lake shall exceed 0.16 mg/L total phosphates as P.

10. No discharge of wastewater to the San Francisco River or its perennial tributaries upstream of Luna Lake Dam shall exceed 1.0 mg/L total phosphates as R

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016. Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-110. Salinity Standards for the Colorado River

A. The flow-weighted average annual salinity in the lower main stem of the Colorado River shall not exceed the following criteria:

Location	Total Dissolved Solids
Below Hoover Dam	723 mg/L
Below Parker Dam	747 mg/L
At Imperial Dam	879 mg/L

B. The plan of implementation contained in the "2014 Review, Water Quality Standards for Salinity, Colorado River System, " approved October 2014, is incorporated by reference to preserve the basin-wide approach to salinity control developed by the Colorado River Basin Salinity Control Forum and to ensure compliance with the numeric criteria for salinity in subsection (A). This material does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or may be obtained from the Colorado River Basin Salinity Control Forum, 106 West 500 South, Suite 101, Bountiful, Utah 84010-6232 or at http://www.coloradoriversalinity.org/ .

(Adopted effective February 18, 1992 (Supp. 92-1). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016.)

§ R18-11-111. Analytical Methods

A. A person conducting an analysis of a sample taken to determine compliance with a water quality standard shall use an analytical method prescribed in A.A.C. R9-14-610, 40 CFR 136.3, or an alternative analytical method approved under A.A.C. R9-14-610(C).

B. A test result from a sample taken to determine compliance with a water quality standard is valid only if the sample is analyzed by a laboratory that is licensed by the Arizona Department of Health Services, an out-of-state laboratory licensed under A.R.S. § 36-495.14, or a laboratory exempted under A.R.S. § 36-495.02, for the analysis performed.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-112. Outstanding Arizona Waters

A. The Director shall classify a surface water as an outstanding Arizona water (OAW) by rule.

B. The Director may adopt, under R18-11-115, a site-specific standard to maintain and protect existing water quality in an OAW.

C. Any person may nominate a surface water for classification as an OAW by filing a nomination with the Director. The nomination shall include:

1. A map and a description of the surface water;

2. A written statement in support of the nomination, including specific reference to the applicable criteria for an OAW classification prescribed in subsection (D);

3. Supporting evidence demonstrating that the criteria prescribed in subsection (D) are met; and

4. Available water quality data relevant to establishing the baseline water quality of the proposed OAW.

D. The Director may classify a surface water as an OAW based upon the following criteria:

1. The surface water is a perennial or intermittent water;

2. The surface water is in a free-flowing condition. For purposes of this subsection, "in a free-flowing condition" means that a surface water does not have an impoundment, diversion, channelization, rip-rapping or other bank armor, or another hydrological modification within the reach nominated for an OAW classification;

3. The surface water has good water quality. For purposes of this subsection, "good water quality" means that the surface water has water quality that meets or is better than applicable surface water quality standards. A surface water that is listed as impaired under R18-11-604(E) is ineligible for OAW classification; and

4. The surface water meets one or both of the following conditions:

a. The surface water is of exceptional recreational or ecological significance because of its unique attributes, such as the geology, flora and fauna, water quality, aesthetic value, or the wilderness characteristic of the surface water;

b. An endangered or threatened species is associated with the surface water and the existing water quality is essential to the species' maintenance and propagation or the surface water provides critical habitat for the threatened or endangered species. An endangered or threatened species is identified in "Endangered and Threatened Wildlife, " 50 CFR 17.11 (revised 2005), and "Endangered and Threatened Plants, " 50 CFR 17.12 (revised 2005). This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 West Washington Street, Phoenix, Arizona 85007 or may be obtained from the National Archives and Records Administration at http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1.

E. The Director shall hold at least one public meeting in the local area of a surface water that is nominated for classification as an OAW to solicit public comment on the nomination.

F. The Director shall consider the following factors when deciding whether to classify a surface water as an OAW:

1. Whether there is the ability to manage the surface water and its watershed to maintain and protect existing water quality;

2. The social and economic impact of Tier 3 antidegradation protection;

3. The public comments in support of, or in opposition to, an OAW classification;

4. The timing of the nomination relative to the triennial review of surface water quality standards;

5. The consistency of an OAW classification with applicable water quality management plans; and

6. Whether the nominated surface water is located within a national or state park, national monument, national recreation area, wilderness area, riparian conservation area, area of critical environmental concern, or it has another special use designation (for example, Wild and Scenic River).

G. The following surface waters are classified as OAWs:

1. The West Fork of the Little Colorado River, from its headwaters to Government Springs (approximately 9.1 river miles);

2. Oak Creek, from its headwaters to its confluence with the Verde River (approximately 50.3 river miles);

3. West Fork of Oak Creek, from its headwaters to its confluence with Oak Creek approximately 15.8 river miles);

4. Peeples Canyon Creek, from its headwaters to its confluence with the Santa Maria River (approximately 8.1 river miles);

5. Burro Creek, from its headwaters at to its confluence with Boulder Creek (approximately 29.5 miles);

6. Francis Creek, from its headwaters at to its confluence with Burro Creek (approximately 22.9 river miles);

7. Bonita Creek, from its boundary of the San Carlos Indian Reservation to its confluence with the Gila River (approximately 14.7 river miles);

8. Cienega Creek, from its confluence with Gardner Canyon to the USGS gaging station (#09484600) (approximately 28.3 river miles);

9. Aravaipa Creek, from its confluence with Stowe Gulch to the downstream boundary of the Aravaipa Canyon Wilderness Area (approximately 15.5 river miles);

10. Cave Creek, from its headwaters to the Coronado National Forest boundary (approximately 10.4 river miles);

11. South Fork of Cave Creek, from its headwaters to its confluence with Cave Creek (approximately 8.6 river miles);

12. Buehman Canyon Creek, from its headwaters to its confluence with unnamed tributary at 32°24'31"/110°32'08" (approximately 9.8 river miles);

13. Lee Valley Creek, from its headwaters " to Lee Valley Reservoir (approximately 1.6 river miles);

14. Bear Wallow Creek, from its headwaters to the boundary of the San Carlos Indian Reservation (approximately 4.25 river miles);

15. North Fork of Bear Wallow Creek, from its headwaters to its confluence with Bear Wallow Creek (approximately 3.8 river miles);

16. South Fork of Bear Wallow Creek, from its headwaters to its confluence with Bear Wallow Creek (approximately 3.8 river miles);

17. Snake Creek, from its headwaters to its confluence with the Black River (approximately 6.2 river miles);

18. Hay Creek, from its headwaters to its confluence with the West Fork of the Black River (approximately 5.5 river miles);

19. Stinky Creek, from the White Mountain Apache Indian Reservation boundary to its confluence with the West Fork of the Black River (approximately 3.0 river miles);

20. KP Creek, from its headwaters to its confluence with the Blue River (approximately 12.7 river miles);

21. Davidson Canyon, from the unnamed spring at 31°59'00"/110°38'49" to its confluence with Cienega Creek; and

22. Fossil Creek, from its headwaters at the confluence of Sandrock and Calf Pen Canyons above Fossil Springs to its confluence with the Verde River (approximately 17.2 river miles).

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Added "water quality standards" to R18-11-112, previously omitted in error (Supp. 96-3). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016.)

§ R18-11-113. Effluent-dependent Waters

A. The Director shall classify a surface water as an effluent-dependent water by rule.

B. The Director may adopt, under R18-11-115, a site-specific water quality standard for an effluent-dependent water.

C. Any person may submit a petition for rule adoption requesting that the Director classify a surface water as an effluent-dependent water. The petition shall include:

1. A map and a description of the surface water;

2. Information that demonstrates that the surface water consists of a point source discharge of wastewater; and

3. Information that demonstrates that, without a point source discharge of a wastewater, the receiving water is an ephemeral water.

D. The Director shall use the water quality standards that apply to an effluent-dependent water to derive water quality-based effluent limits for a point source discharge of wastewater to an ephemeral water.

E. The Director may use aquatic and wildlife (edw) acute standards only to derive water quality based effluent limits for a sporadic, infrequent, or emergency point source discharge to an ephemeral water or to an effluent-dependent water. The Director shall consider the following factors when deciding whether to apply A&Wedw (acute) standards:

1. The amount, frequency, and duration of the discharge;

2. The length of time water may be present in the receiving water;

3. The distance to a downstream water with aquatic and wildlife chronic standards; and

4. The likelihood of chronic exposure to pollutants.

F. The Director may establish alternative water quality-based effluent limits in an AZPDES permit based on seasonal differences in the discharge.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective December 18, 1992 (Supp. 92-4). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-114. Mixing Zones

A. The Director may establish a mixing zone for a point source discharge to a surface water as a condition of an individual AZPDES permit on a pollutant-by-pollutant basis. A mixing zone is prohibited in an ephemeral water or where there is no water for dilution, or asprohibited pursuant to subsection (H) of this section.

B. The owner or operator of a point source seeking the establishment of a mixing zone shall submit a request to the Director for a mixing zone as part of an application for an AZPDES permit. The request shall include:

1. An identification of the pollutant for which the mixing zone is requested;

2. A proposed outfall design;

3. A definition of the boundary of the proposed mixing zone. For purposes of this subsection, the boundary of a mixing zone is where complete mixing occurs; and

4. A complete and detailed description of the existing physical, biological, and chemical conditions of the receiving water and the predicted impact of the proposed mixing zone on those conditions. The description shall also address the factors listed in subsection (D) of this section that the Director must consider when deciding to grant or deny a request and shall address the mixing zone requirements in subsection (H) of this section.

C. The Director shall consider the following factors when deciding whether to grant or deny a request for a mixing zone:

1. The assimilative capacity of the receiving water;

2. The likelihood of adverse human health effects;

3. The location of drinking water plant intakes and public swimming areas;

4. The predicted exposure of biota and the likelihood that resident biota will be adversely affected;

5. Bioaccumulation;

6. Whether there will be acute toxicity in the mixing zone, and, if so, the size of the zone of initial dilution;

7. The known or predicted safe exposure levels for the pollutant for which the mixing zone is requested;

8. The size of the mixing zone;

9. The location of the mixing zone relative to biologically sensitive areas in the surface water;

10. The concentration gradient of the pollutant within the mixing zone;

11. Sediment deposition;

12. The potential for attracting aquatic life to the mixing zone; and

13. The cumulative impacts of other mixing zones and other discharges to the surface water.

D. Director determination.

1. The Director shall deny a request to establish a mixing zone if a water quality standard will be violated outside the boundaries of the proposed mixing zone.

2. If the Director approves the request to establish a mixing zone, the Director shall establish the mixing zone as a condition of an AZPDES permit. The Director shall include any mixing zone condition in the AZPDES permit that is necessary to protect human health and the designated uses of the surface water.

E. Any person who is adversely affected by the Director's decision to grant or deny a request for a mixing zone may appeal the decision under A.R.S. § 49-321 et seq. and A.R.S. § 41-1092 et seq.

F. The Director shall reevaluate a mixing zone upon issuance, reissuance, or modification of the AZPDES permit for the point source or a modification of the outfall structure.

G. Mixing zone requirements.

1. A mixing zone shall be as small as practicable in that it shall not extend beyond the point in the waterbody at which complete mixing occurs under the critical flow conditions of the discharge and of the receiving water.

2. The total horizontal area allocated to all mixing zones on a lake shall not exceed 10 percent of the surface area of the lake.

3. Adjacent mixing zones in a lake shall not overlap or be located closer together than the greatest horizontal dimension of the largest mixing zone.

4. The design of any discharge outfall shall maximize initial dilution of the wastewater in a surface water.

5. The size of the zone of initial dilution in a mixing zone shall prevent lethality to organisms passing through the zone of initial dilution. The mixing zone shall prevent acute toxicity and lethality to organisms passing through the mixing zone.

H. The Director shall not establish a mixing zone in an AZPDES permit for the following persistent, bioaccumulative pollutants:

1. Chlordane,

2. DDT and its metabolites (DDD and DDE),

3. Dieldrin,

4. Dioxin,

5. Endrin,

6. Endrin aldehyde,

7. Heptachlor,

8. Heptachlor epoxide,

9. Lindane,

10. Mercury,

11. Polychlorinated biphenyls (PCBs), and

12. Toxaphene.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-115. Site-Specific Standards

A. The Director shall adopt a site-specific standard by rule.

B. The Director may adopt a site-specific standard based upon a request or upon the Director's initiative for any of the following reasons:

1. Local physical, chemical, or hydrological conditions of a surface water such as pH, hardness, fate and transport, or temperature alters the biological availability or toxicity of a pollutant;

2. The sensitivity of resident aquatic organisms that occur in a surface water to a pollutant differs from the sensitivity of the species used to derive the numeric water quality standards to protect aquatic life in Appendix A;

3. Resident aquatic organisms that occur in a surface water represent a narrower mix of species than those in the dataset used by ADEQ to derive numeric water quality standards to protect aquatic life in Appendix A;

4. The natural background concentration of a pollutant is greater than the numeric water quality standard to protect aquatic life prescribed in Appendix A. "Natural background" means the concentration of a pollutant in a surface water due only to non-anthropogenic sources; or

5. Other factors or combination of factors that upon review by the Director warrant changing a numeric water quality standard for a surface water.

C. Site-specific standard by request. To request that the Director adopt a site-specific standard, a person must conduct a study to support the development of a site-specific standard using a scientifically-defensible procedure.

1. Before conducting the study, a person shall submit a study outline to the Director for approval that contains the following elements:

a. Identifies the pollutant;

b. Describes the reach's boundaries;

c. Uses one of the following procedures, as defined by the most recent EPA guidance documents:

i. The recalculation procedure,

ii. The water effects ratio for metals,

iii. The streamlined water effects ratio, or

iv. The Biotic ligand model.

d. Demonstrates that all designated uses are protected.

2. Alternatively, a study outline submitted for the Director's approval must contain the following elements:

a. Identifies the pollutant;

b. Describes the reach's boundaries;

c. Describes the hydrologic regime of the waterbody;

d. Describes the scientifically-defensible procedure, which can include relevant aquatic life studies, ecological studies, laboratory tests, biological translators, fate and transport models, and risk analyses;

e. Describes and compares the taxonomic composition, distribution and density of the aquatic biota within the reach to a reference reach and describes the basis of any major taxonomic differences;

f. Describes the pollutant's effect on the affected species or appropriate surrogate species and on the other designated uses listed for the reach;

g. Demonstrates that all designated uses are protected; and

h. A person seeking to develop a site-specific standard based on natural background may use statistical or modeling approaches to determine natural background concentration. Modeling approaches include Better Assessment Science Integrating Source and Nonpoint Sources (Basins), Hydrologic Simulation Program-Fortran (HSPF), and Hydrologic Engineering Center (HEC) programs developed by the U.S. Army Corps of Engineers.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Section repealed by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). New Section made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016. Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-116. Resource Management Agencies

Nothing in this Article prohibits fisheries management activities by the Arizona Game and Fish Department or the U.S. Fish and Wildlife Service. This Article does not exempt fish hatcheries from AZPDES permit requirements.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-117. Canals and Urban Park Lakes

A. Nothing in this Article prevents the routine physical or mechanical maintenance of canals, drains, and the urban lakes identified in Appendix B. Physical or mechanical maintenance includes dewatering, lining, dredging, and the physical, biological, or chemical control of weeds and algae. Increases in turbidity that result from physical or mechanical maintenance activities are permitted in canals, drains, and the urban lakes identified in Appendix B.

B. The discharge of lubricating oil associated with the start-up of well pumps that discharge to canals is not a violation of R18-11-108(B).

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-118. Dams and Flood Control Structures

Increases in turbidity that result from the routine physical or mechanical maintenance of a dam or flood control structure are not violations of this Article. Nothing in this Article requires the release of water from a dam or a flood control structure.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

§ R18-11-119. Natural Background

Where the concentration of a pollutant exceeds a water quality standard and the exceedance is not caused by human activity but is due solely to naturally-occurring conditions, the exceedance shall not be considered a violation of the water quality standard.

(Adopted effective February 18, 1992 (Supp. 92-1).)

§ R18-11-120. Enforcement of Non-permitted Discharges

A. The Department may establish a numeric water quality standard at a concentration that is below the practical quantitation limit. Therefore, in enforcement actions pursuant to subsection (B) of this section, the water quality standard is enforceable at the practical quantitation limit.

B. Except for chronic aquatic and wildlife criteria, for non-permitted discharge violations, the Department shall determine compliance with numeric water quality standard criteria from the analytical result of a single sample, unless additional samples are required under this article. For chronic aquatic and wildlife criteria, compliance for non-permitted discharge violations shall be determined from the geometric mean of the analytical results of the last four samples taken at least 24 hours apart. For the purposes of this section, a "non-permitted discharge violation" does not include a discharge regulated under an AZPDES permit.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-121. Schedules of Compliance

A compliance schedule in an AZPDES permit shall require the permittee to comply with a discharge limitation based upon a new or revised water quality standard as soon as possible to achieve compliance. The permittee shall demonstrate that all requirements under § 301(b) and § 306 of the Clean Water Act [33 U.S.C. 1311(b) and 1316] are achieved and that the point source cannot comply with a discharge limitation based upon the new or revised water quality standard through the application of existing water pollution control technology, operational changes, or source reduction. In establishing a compliance schedule, the Director shall consider:

1. How much time the permittee has already had to meet any effluent limitations under a prior permit;

2. The extent to which the permittee has made good faith efforts to comply with the effluent limitations and other requirements in a prior permit;

3. Whether treatment facilities, operations, or measures must be modified to meet the effluent limitations;

4. How long any necessary modifications would take to implement; and

5. Whether the permittee would be expected to use the same treatment facilities, operations or other measures to meet the effluent limitations as it would have used to meet the effluent limitations in a prior permit.

(Adopted effective February 18, 1992 (Supp. 92-1). Amended effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016.)

§ R18-11-122. Variances

A. Upon request, the Director may establish, by rule, a discharger-specific or water segment(s)-specific variance from a water quality standard if requirements pursuant to this section are met.

B. A person who requests a variance must demonstrate all of the following information:

1. Identification of the specific pollutant and water quality standard for which a variance is sought.

2. Identification of the receiving surface water segment or segments to which the variance would apply.

3. A detailed discussion of the need for the variance, including the reasons why compliance with the water quality standard cannot be achieved over the term of the proposed variance, and any other useful information or analysis to evaluate attainability.

4. A detailed discussion of the discharge control technologies that are available for achieving compliance with the water quality standard for which a variance is sought.

5. Documentation that more advanced treatment technology than applicable technology-based effluent limitations is necessary to achieve compliance with the water quality standard for which a variance is sought.

6. A detailed description of proposed interim discharge limitations and pollutant control activities that represent the highest level of treatment achievable by a point source discharger or dischargers during the term of the variance.

7. Documentation that the proposed term is only as long as necessary to achieve the highest attainable condition.

8. Documentation that is appropriate to the type of use to which the variance would apply as follows:

a. For a water quality standard variance to a use specified in Clean Water Act § 101(a)(2), documentation must include demonstration of at least one of the following factors that preclude attainment of the use during the term of the variance:

i. Naturally occurring pollutant concentrations prevent attainment of the use;

ii. 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;

iii. That human-caused conditions or sources of pollution prevent the attainment of the water quality standard for which the variance is sought and either (1) it is not possible to remedy the conditions or sources of pollution or (2) remedying the human-caused conditions would cause more environmental damage to correct than to leave in place;

iv. 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 n a way that would result in the attainment of the use;

v. 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;

vi. That installation and operation of each of the available discharge technologies more advanced than those required to comply with technology-based effluent limitations to achieve compliance with the water quality standard would result in substantial and widespread economic and social impact; or

vii. Actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities preclude attainment of the designated use and criterion while the actions are being implemented.

b. For a water quality standard variance to a use other than those uses specified in Clean Water Act § 101(a)(2), documentation must justify how consideration and value of the water subject to the use appropriately supports the variance and term. A demonstration consistent with (B)(8)(a) of this section may be used to satisfy this requirement.

9. For a waterbody segment(s)-specific variance, the following information is required before the Director may issue a variance, in addition to all other required documentation pursuant to this section:

a. Identification and documentation of any cost-effective and reasonable best management practices for nonpoint source controls related to the

pollutant(s) or water quality parameter(s) and water body or waterbody segment(s) specified in the variance that could be implemented to make progress towards attaining the underlying designated use and criterion; and

b. If any variance pursuant to (B)(9)(a) of this section previously applied to the water body or waterbody segment(s), documentation must also demonstrate whether and to what extent best management practices for nonpoint source controls were implemented to address the pollutant(s) or water quality parameter(s) subject to the water quality variance and the water quality progress achieved.

10. For a discharger-specific variance, the following information is required before the Director may issue a variance, in addition to all other required documentation pursuant to this section:

a. Identification of the permittee subject to the variance;

b. For an existing point source discharge, a detailed description of the existing discharge control technologies that are used to achieve compliance with applicable water quality standards. For a new point source discharge, a detailed description of the proposed discharge control technologies that will be used to achieve compliance with applicable water quality standards; and

c. Documentation that the existing or proposed discharge control technologies will comply with applicable technology-based effluent limitations.

C. The Director shall consider the following factors when deciding whether to grant or deny a variance request:

1. Bioaccumulation,

2. The predicted exposure of biota and the likelihood that resident biota will be adversely affected,

3. The known or predicted safe exposure levels for the pollutant for which the variance is requested, and

4. The likelihood of adverse human health effects.

D. The variance shall represent the highest attainable condition of the water body or water body segment applicable throughout the term of the variance.

E. A variance shall not result in any lowering of the currently attained ambient water quality, unless the variance is necessary for restoration activities, consistent with (B)(8)(a)(vii) of this section. The Director must

specify the highest attainable condition of the water body or waterbody segment as a quantifiable expression of one of the following:

1. The highest attainable interim criterion,

2. The interim effluent condition that reflects the greatest pollutant reduction achievable; or

3. If no additional feasible pollutant control technology can be identified, the interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time of the issuance of the variance, and the adoption and implementation of a Pollutant Minimization Program.

F. A variance shall not modify the underlying designated use and criterion. A variance is only a time limited exception to the underlying standard. For discharge-specific variances, other point source dischargers to the surface water that are not granted a variance shall still meet all applicable water quality standards.

G. Point source discharges shall meet all other applicable water quality standards for which a variance is not granted.

H. The Director may not grant a variance for a point source discharge to an OAW listed in R18-11-112(G).

I. Each variance established by the Director is subject to review and approval by the Regional Administrator.

J. The term of the water quality variance may only be as long as necessary to achieve the highest attainable condition and must be consistent with the supporting documentation in subsection (E) of this section. The variance term runs from the approval of the variance by the Regional Administrator.

K. The Director shall reevaluate, in its triennial review, whether each variance continues to represent the highest attainable condition. Comment on the variance shall be considered regarding whether the variance continues to represent the highest attainable condition. If the Director determines that the requirements of the variance do not represent the highest attainable condition, then the Director shall modify or repeal the variance in its triennial review rulemaking.

L. If the variance is modified by rulemaking, the requirements of the variance shall represent the highest attainable condition at the time of initial adoption of the variance, or the highest attainable condition identified during the current reevaluation, whichever is more stringent.

M. Upon expiration of a variance, point source dischargers shall comply with the water quality standard.

N. The following are discharger-specific variances adopted by the Director:

O. The following are water body and waterbody segment-specific variances adopted by the Director:

(Adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-123. Discharge Prohibitions

A. The discharge of wastewater to the following surface waters is prohibited:

1. Sabino Canyon Creek;

2. Vekol Wash, upstream of the Ak-Chin Indian Reservation; and

3. Smith Wash, upstream of the Ak-Chin Indian Reservation.

B. The discharge to Lake Powell of human body wastes and the wastes from toilets and other receptacles intended to receive or retain wastes from a vessel is prohibited.

(Adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4).)

APPENDIX A. Numeric Water Quality Standards

Table 1. Water Quality Criteria By Designated Use (see f)

Parameter	CAS NUMBER	DWS (µg/L)	FC (µg/L)	FBC (µg/L)	PBC (µg/L)	A&Wc Acute (µg/L)	A&Wc Chronic (µg/L)	A&W Acut (µg/
Acenaphthene	83329	420	198	56, 000	56, 000	850	550	850
Acenaphthylene	208968	420		56, 000	56, 000			
Acrolein	107028	3.5	1.9	467	467	34 3	3	3
Acrylonitrile	107131	0.006	0.2	9	37, 333	3, 800	250	3, 80
Alachlor	15972608	2		9, 333	9, 333	2, 500	170	2, 50
Aldrin	309002	0.002	0.0000 5	0.27	28	3		3
Alpha Particles (Gross) Radioactivity		15 pCi/L See (h)						
Ammonia	7664417					See (e) & Tables 11 (present) & 14 (absent)	See (e) & Tables 13 (present) & 17 (absent)	See (Table (pres & 15 (abse
Anthracene	120127	2, 100	74	280, 000	280, 000			
Antimony	7440360	6 T	640 T	747 T	747 T	88 D	30 D	88 D
Arsenic	7440382	10 T	80 T	30 T	280 T	340 D	150 D	340 I
Asbestos	1332214	See (a)						
Atrazine	1912249	3		32, 667	32, 667			
Barium	7440393	2, 000 T		186, 667 T	186, 667 T			
Benz(a)anthracene	56553	0.005	0.02	47	280			
Benzene	71432	5	114	133	3, 733	2, 700	180	2, 70
Benzo[b] fluoranthene Benzfluoranthene	205992	0.005	0.02	47	280			
Benzidine	92875	0.0002	0.0002	0.02	2, 800	1, 300	89	1, 30
Benzo(a)pyrene	50328	0.2	0.1	47	280			
Benzo(k)fluoranthene	207089	0.005	0.02	47	280			
Beryllium	7440417	4 T	84 T	1, 867 T	1, 867 T	65 D	5.3 D	65 D

Beta particles and photon emitters		4 millirems / year See (i)						
Bis(2-chloroethoxy) methane	111911	21		2, 800	2, 800			
Bis(2-chloroethyl) ether	111444	0.03	0.5	4	4	120, 000	6, 700	120,
Bis(2-chloroisopropyl) ether	108601	280	3, 441	37, 333	37, 333			
Bis(chloromethyl) ether	542881	0.00015		0.02				
Boron	7440428	1, 400 T		186, 667 T	186, 667 T			
Bromodichloromethane	75274	TTHM See (g)	17	TTHM	18, 667			
to 4-Bromophenyl phenyl ether	101553					180	14	180
Bromoform	75252	TTHM See (g)	133	591	18, 667	15, 000	10, 000	15, 0
Bromomethane	74839	9.8	299	1, 307	1, 307	5, 500	360	5, 50
Butyl benzyl phthalate	85687	1, 400	386	186, 667	186, 667	1, 700	130	1, 70
Cadmium	7440439	5 T	6 T	467 T	467 T	See Table 2	See Table 3	See Table
Carbaryl	63252					2.1	2.1	2.1
Carbofuran	1563662	40		4, 667	4, 667	650	50	650
Carbon tetrachloride	56235	5	3	67	3, 733	18, 000	1, 100	18, 0
Chlordane	57749	2	0.0008	13	467	2.4	0.004	2.4
Chlorine (total residual)	7782505	4, 000		93, 333	93, 333	19	11	19
Chlorobenzene	108907	100	1, 553	18, 667	18, 667	3, 800	260	3, 80
Chloroethane	75003	280		93, 333	93, 333			
2-Chloroethyl vinyl ether	110758					180, 000	9, 800	180,
Chloroform	67663	TTHM See (g)	2, 133	9, 333	9, 333	14, 000	900	14, 0
p-Chloro-m-cresol	59507					15	4.7	15
Chloromethane	74873					270, 000	15, 000	270,
beta-Chloronaphthalene	91587	2240	1267	298, 667	298, 667			

2-Chlorophenol	95578	35	30	4, 667	4, 667	2, 200	150	2, 20
Chloropyrifos	2921882	21	1.0	2, 800	2, 800	0.08	0.04	0.08
Chromium III	16065831	10, 500	75, 000 T	1, 400, 000 T	1, 400, 000 T	See (d) & Table 4	See (d) & Table 4	See (Table
Chromium VI	18540299	21 T	150 T	2, 800 T	2, 800 T	16 D	11 D	16 D
Chromium (Total)	7440473	100 T						
Chrysene	218019	0.005	0.02	0.6	0.6			
Copper	7440508	1, 300 T		1, 300 T	1, 300 T	See (d) & Table 5	See (d) & Table 5	See (Table
Cyanide (as free cyanide)	57125	200 T	504 T	588 T	588 T	22 T	5.2 T	41 T
Dalapon	75990	200	8, 000	28, 000	28, 000			
DDT and its breakdown products	50293	0.1	0.0003	14	467	1.1	0.001	1.1
Demeton	8065483						0.1	
Diazinon	333415					0.17	0.17	0.17
Dibenz (ah) anthracene	53703	0.350	0.02	47.0	280.0			
Dibromochloromethane	124481	TTHM See (g)	13	TTHM	18, 667			
1, 2-Dibromo-3-chloro-pro-pane	96128	0.2		2, 800	2, 800			
1, 2-Dibromoethane	106934	0.02		2	8, 400			
Dibutyl phthalate	84742	700	899	93, 333	93, 333	470	35	470
1, 2-Dichlorobenzene	95501	600	205	84, 000	84, 000	790	300	1, 20
1, 3-Dichlorobenzene	541731					2, 500	970	2, 50
1, 4-Dichlorobenzene	106467	75	5755	373, 333	373, 333	560	210	2, 00
3, 3'-Dichlorobenzidine	91941	0.08	0.03	10	10			
1, 2-Dichloroethane	107062	5	37	15	186, 667	59, 000	41, 000	59, 0
1, 1-Dichloroethylene	75354	7	7, 143	46, 667	46, 667	15, 000	950	15, 0
1, 2-cis-Dichloroeth-ylene	156592	70		1, 867	1, 867			
1, 2-trans-Dichloroeth-	156605	100	10, 127	18, 667	18, 667	68, 000	3, 900	68, 0

ylene								
Dichloromethane	75092	5	2, 222	2, 333	5, 600	97, 000	5, 500	97, 0
2, 4-Dichlorophenol	120832	21	59	2, 800	2, 800	1, 000	88	1, 00
2, 4-Dichlorophenoxy-acetic acid (2, 4-D)	94757	70		9, 333	9, 333			
1, 2-Dichloropropane	78875	5	17, 518	84, 000	84, 000	26, 000	9, 200	26, 0
1, 3-Dichloropropene	542756	0.7	42	93	28, 000	3, 000	1, 100	3, 00
Dieldrin	60571	0.002	0.0000 5	0.3	47	0.2	0.06	0.2
Diethyl phthalate	84662	5, 600	8, 767	746, 667	746, 667	26, 000	1, 600	26, 0
Di (2-ethylhexyl) adi-pate	103231	400		3, 889	560, 000			
Di (2-ethylhexyl) phthalate	117817	6	3	333	18, 667	400	360	400
2, 4-Dimethylphenol	105679	140	171	18, 667	18, 667	1, 000	310	1, 00
Dimethyl phthalate	131113					17, 000	1, 000	17, 0
4, 6-Dinitro-o-cresol	534521	0.6	12	75	75	310	24	310
2, 4-Dinitrophenol	51285	14	1, 067	1, 867	1, 867	110	9.2	110
2, 4-Dinitrotoluene	121142	14	421	1, 867	1, 867	14, 000	860	14, 0
2, 6-Dinitrotoluene	606202	0.05		7	280			
Di-n-octyl phthalate	117840	70		9, 333	9, 333			
Dinoseb	88857	7	12	933	933			
1, 2-Diphenylhydrazine	122667	0.04	0.2	6	6	130	11	130
Diquat	85007	20	176	2, 053	2, 053			
Endosulfan sulfate	1031078	42	18	5, 600	5, 600	0.2	0.06	0.2
Endosulfan (Total)	115297	42	18	5, 600	5, 600	0.2	0.06	0.2
Endothall	145733	100	16, 000	18, 667	18, 667			
Endrin	72208	2	0.06	1, 120	1, 120	0.09	0.04	0.09
Endrin aldehyde	7421933	2	0.06	1, 120	1, 120	0.09	0.04	0.09
Ethylbenzene	100414	700	2, 133	93, 333	93, 333	23, 000	1, 400	23, 0
Fluoranthene	206440	280	28	37, 333	37, 333	2, 000	1, 600	2, 00
Fluorene	86737	280	1, 067	37, 333	37, 333			
Fluoride	7782414	4, 000		140, 000	140, 000			
Glyphosate	1071836	700	266, 66 7	93, 333	93, 333			

Guthion	86500	21	92	2, 800	2, 800		0.01	
Heptachlor	76448	0.4	0.0000 8	1	467	0.5	0.004	0.5
Heptachlor epoxide	1024573	0.2	0.00004	0.5	12	0.5	0.004	0.5
Hexachlorobenzene	118741	1	0.0003	3	747	6	3.7	6
Hexachlorobutadiene	87683	0.4	18	60	187	45	8.2	45
Hexachlorocyclohex-ane alpha	319846	0.006	0.005	0.7	7, 467	1, 600	130	1, 60
Hexachlorocyclohex-ane beta	319857	0.02	0.02	3	560	1, 600	130	1, 60
Hexachlorocyclohex-ane delta	319868					1, 600	130	1, 60
Hexachlorocyclohex-ane gamma (lindane)	58899	0.2	5	700	700	1	0.08	1
Hexachlorocyclopen-tadi- ene	77474	50	74	11, 200	11, 200	3.5	0.3	3.5
Hexachloroethane	67721	0.9	1	117	653	490	350	490
Hydrogen sulfide	7783064						2 See (c)	
Indeno (1, 2, 3-cd) pyrene	193395	0.4	1	47	47			
Iron	7439896						1, 000 D	
Isophorone	78591	37	961	4, 912	186, 667	59, 000	43, 000	59, 0
Lead	7439971	15 T		15 T	15 T	See (d) & Table 6	See (d) & Table 6	See (Table
Malathion	121755	140	1, 455	18, 667	18, 667		0.1	
Manganese	7439965	980		130, 667	130, 667			
Mercury	7439976	2 T		280 T	280 T	2.4 D	0.01 D	2.4 D
Methoxychlor	72435	40		18, 667	18, 667		0.03	
Methylmercury	22967926		0.3 mg/kg					
Mirex	2385855	1	0.0002	0.26	187		0.001	
Naphthalene	91203	140	1, 524	18, 667	18, 667	1, 100	210	3, 20
Nickel	7440020	210 T	511 T	28, 000 T	28, 000 T	See (d) & Table 7	See (d) & Table 7	See (Table
Nitrate	14797558	10, 000		3, 733, 333	3, 733, 333			
Nitrite	14797650	1, 000		233,	233,			

				333	333			
Nitrate + Nitrite		10, 000						
Nitrobenzene	98953	14	554	1, 867	1, 867	1, 300	850	1, 30
p-Nitrophenol	100027					4, 100	3, 000	4, 10
Nitrosodibutylamine	924163	0.006	0.2	0.9				
Nitrosodiethylamine	55185	0.0002	0.1	0.03				
N-nitrosodimethylamine	62759	0.001	3	0.09	0.09			
N-Nitrosodiphe-nylamine	86306	7.1	6	952	952	2, 900	200	2, 90
N-nitrosodi-n-propyl-amine	621647	0.005	0.5	0.7	0.7			
N-nitrosopyrrolidine	930552	0.02	34	2				
Nonylphenol	104405					28	6.6	28
Oxamyl	23135220	200	6452	23, 333	23, 333			
Parathion	56382	42	16	5, 600	5, 600	0.07	0.01	0.07
Pentachlorobenzene	608935	6		747	747			
Paraquat	1910425	32	12, 000	4, 200	4, 200	100	54	100
Pentachlorophenol	87865	1	111	12	4, 667	See (e), (j) & Table 10	See (e), (j) & Table 10	See ((j) & Table
Permethrin	52645531	350	77	46, 667	46, 667	0.3	0.2	0.3
Phenanthrene	85018					30	6.3	30
Phenol	108952	2, 100	37	280, 000	280, 000	5, 100	730	7, 00
Picloram	1918021	500	1, 806	65, 333	65, 333			
Polychlorinatedbiphe-nyls (PCBs)	1336363	0.5	0.00006	2	19	2	0.01	2
Pyrene	129000	210	800	28, 000	28, 000			
Radium 226 + Radium 228		5 pCi/L						
Selenium	7782492	50 T	667 T	4, 667 T	4, 667 T		2 T	
Silver	7440224	35 T	8, 000 T	4, 667 T	4, 667 T	See (d) & Table 8		See (Table
Simazine	112349	4		4, 667	4, 667			

Strontium	7440246	8 pCi/L						
Styrene	100425	100		186, 667	186, 667	5, 600	370	5, 60
Sulfides								
1, 2, 4, 5-Tetrachloroben-zene	95943	2.1		280	280			
2, 3, 7, 8-Tetrachlorod-ibenzo-p-dioxin (2, 3, 7, 8-TCDD)	1746016	0.00003	0.0000001	0.0007	0.0007	0.01	0.005	0.01
1, 1, 2, 2-Tetrachlo-roethane	79345	0.2	32, 000	23	186, 667	4, 700	3, 200	4, 70
Tetrachloroethylene	127184	5	62	2, 222	5, 600	2, 600	280	6, 50
Thallium	7440280	2 T	0.07 T	9 T	9 T	700 D	150 D	700 I
Toluene	108883	1, 000	11, 963	149, 333	149, 333	8, 700	180	8, 70
Toxaphene	8001352	3	0.0003	4	1, 867	0.7	0.0002	0.7
Tributyltin	688733		0.08	280	280	0.5	0.07	0.5
1, 2, 4-Trichlorobenzene	120821	70	70	9, 333	9, 333	750	130	1, 70
1, 1, 1-Trichloroethane	71556	200	285, 714	1, 866, 66 7	1, 866, 6 67	2, 600	1, 600	2, 60
1, 1, 2-Trichloroethane	79005	5	16	82	3, 733	18, 000	12, 000	18, 0
Trichloroethylene	79016	5	8	101	467	20, 000	1, 300	20, 0
2, 4, 5- Trichlorophenol	95954	700		93, 333	93, 333			
2, 4, 6-Trichlorophenol	88062	3.2	2	424	424	160	25	160
2, 4, 5-Trichlorophenoxy proprionic acid (2, 4, 5-TP)	93721	50		29, 867	29, 867			
Trihalomethanes (T)		80						
Tritium	10028178	20, 000 pCi/L						
Uranium	7440611	30 D		2, 800	2, 800			
Vinyl chloride	75014	2	5	6	2, 800			
Xylenes (T)	1330207	10, 000		186, 667	186, 667			
Zinc	7440666	2, 100 T	5, 106 T	280, 000 T	280, 000 T	See (d) & Table 9	See (d) & Table 9	See (Table
2-nitrophenol	88755		No Data	No	No	No Data	No Data	No D

				Data	Data			
1, 1-dichloroethane	85343		No Data	No Data	No Data	No Data	No Data	No D
4-chlorophenyl phenyl ether	7005723		No Data	No Data	No Data	No Data	No Data	No D
Benzo (ghi) perylene	191242		No Data	No Data	No Data	No Data	No Data	No D

Footnotes

a. The asbestos standard is 7 million fibers (longer than 10 micrometers) per liter.

b. The aldrin/dieldrin standard is exceeded when the sum of the two compounds exceeds 0.003 µg/L.

c. In lakes, the acute criteria for hydrogen sulfide apply only to water samples taken from the epilimnion, or the upper layer of a lake or reservoir.

d. Hardness, expressed as mg/L $CaCO_3$ is determined according to the following criteria:

i. If the receiving water body has an A&Wc or A&Ww designated use, then hardness is based on the hardness of the receiving water body from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg/L $CaCO_3$.

ii. If the receiving water has an A&Wedw or A&We designated use, then the hardness is based on the hardness of the effluent from a sample taken at the same time that the sample for the metal is taken, except that the hardness may not exceed 400 mg/L $CaCO_3$.

iii. The mathematical equations for the hardness-dependent parameter represent the water quality standards. Examples of criteria for the hardness-dependent parameters have been calculated and are presented in separate tables at the end of Appendix A for the convenience of the user.

e. pH is determined according to the following criteria:

i. If the receiving water has an A&Wc or A&Ww designated use, then pH is based on the pH of the receiving water body from a sample taken at the same time that the sample for pentachlorophenol or ammonia is taken.

ii. If the receiving water body has an A&Wedw or A&We designated use, then the pH is based on the pH of the effluent from a sample taken at the same time that the sample for pentachlorophenol or ammonia is taken.

iii. The mathematical equations for ammonia represent the water quality standards. Examples of criteria for ammonia have been calculated and are presented in separate tables at the end of Appendix A for the convenience of the user.

f. Table 1 abbreviations.

i. µg/L = micrograms per liter,

ii. mg/kg = milligrams per kilogram,

iii. pCi/L = picocuries per liter,

iv. D = dissolved,

v. T = total recoverable,

vi. TTHM indicates that the chemical is a trihalomethane.

g. The total trihalomethane (TTHM) standard is exceeded when the sum of these four compounds exceeds 80 µg/L, as a rolling annual average.

h. The concentration of gross alpha particle activity includes radium-226, but excludes radon and uranium.

i. The average annual concentration of beta particle activity and photon emitters from manmade radionuclides shall not produce an annual dose equivalent to the total body or any internal organ greater than four millirems per year.

j. The mathematical equations for the pH-dependent parameters represent the water quality standards. Examples of criteria for the pH-dependent parameters have been calculated and are presented in separate tables at the end of Appendix A for the convenience of the user.

k. Abbreviations for the mathematical equations are as follows:

e = the base of the natural logarithm and is a mathematical constant equal to 2.71828

LN = is the natural logarithm

CMC = Criterion Maximum Concentration (acute)

CCC= Criterion Continuous Concentration (chronic)

Table 2. Acute Water Quality Standards for Dissolved Cadmium

Aquatic and Wildlife coldwater		Aquatic and Wildlife warm water, and edw		Aquatic and Wildlife ephemeral	
Hard. mg/L	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L.**
20	0.40	20	2.1	20	4.9
100	1.8	100	9.4	100	22
400	6.5	400	34	400	80
$e^{(0.9789*LN(Hardness)-3.866)*}$ (1.136672-LN(Hard-ness)*0.041838)		$e^{(0.9789*LN(Hardness)-2.208)*}$ (1.136672-LN(Hard-ness)*0.041838)		$e^{(0.9789*LN(Hardness)-1.363)*}$ (1.136672-LN(Hard-ness)*0.041838)	

Table 3. Chronic Water Quality Standards for Dissolved Cadmium

Aquatic and Wildlife coldwater, warmwater, and edw	
Hard. mg/L	**Std. µg/L**
20	0.21
100	0.72
400	2.0
$e^{(0.7977*LN(Hardness)-3.909)*}$ (1.101672-LN(Hardness)*0.041838)	

Table 4. Water Quality Standards for Dissolved Chromium III

Acute Aquatic and Wildlife cold-water, warmwater and edw		Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
Hard. mg/L	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**	**Hard. mg/L**	**Std. µg/L**
20	152	20	19.8	20	512
100	570	100	74.1	100	1, 912
400	1, 773	400	231	400	5, 950
$e^{(0.819*LN(Hardness)+3.7256)}$ *(0.316)		$e^{(0.819*LN(Hardness)+0.6848)*}$ (0.86)		$e^{(0.819*LN(Hard-ness)+4.9361)*}$ (0.316)	

Table 5. Water Quality Standards for Dissolved Copper

Acute Aquatic and Wildlife coldwater, warmwater and edw	Chronic Aquatic and Wildlife coldwater, warmwater and edw	Acute Aquatic and Wildlife ephemeral

Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
20	2.9	20	2.3	20	5.1
100	13	100	9.0	100	23
400	50	400	29	400	86
$e^{(0.9422*LN(Hardness)-1.702)*}(0.96)$		$e^{(0.8545*LN(Hardness)-1.702)*}(0.96)$		$e^{(0.9422*LN(Hardness)-1.1514)*}(0.96)$	

Table 6. Water Quality Standards for Dissolved Lead

Acute Aquatic and Wildlife coldwater, warmwater and edw		Chronic Aquatic and Wildlife coldwater, warmwater and edw		Acute Aquatic and Wildlife ephemeral	
Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L	Hard. mg/L	Std. µg/L
20	10.8	20	0.42	20	22.8
100	64.6	100	2.5	100	136.3
400	281	400	10.9	400	592.7
$e^{(1.273*LN(Hardness)-1.46)*}(1.46203-(LN(Hardness))*(0.145712))$		$e^{(1.273*LN(Hardness)-4.705)*}(1.46203-(LN(Hardness))*(0.145712))$		$e^{(1.273*(LN(Hardness))-0.7131)*}(1.46203-(LN(Hardness))*(0.145712))$	

Table 11. Acute Standards for Total Ammonia (in mg/L, as N) for Aquatic and Wildlife coldwater, Unionid Mussels Present

For the aquatic and wildlife coldwater uses, unionids will be assumed to be present unless a study is performed demonstrating that they are absent and there is no historic evidence of their presence, or hydrologic modification has altered the flow regime in a way that would prevent their reestablishment.

Temperature (°C)																	
pH	0-14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	33	33	32	29	27	25	23	21	19	18	16	15	14	13	12	11	9.9
6.6	31	31	30	28	26	24	22	20	18	17	16	14	13	12	11	10	9.5
6.7	30	30	29	27	24	22	21	19	18	16	15	14	13	12	11	9.8	9
6.8	28	28	27	25	23	21	20	18	17	15	14	13	12	11	10	9.2	8.5
6.9	26	26	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9
7	24	24	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	8	7.3
7.1	22	22	21	20	18	17	15	14	13	12	11	10	9.3	8.5	7.9	7.2	6.7
7.2	20	20	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.5	6

7.3	18	18	17	16	14	13	12	11	10	9.5	8.7	8	7.4	6.8	6.3	5.8	5.3
7.4	15	15	15	14	13	12	11	9.8	9	8.3	7.7	7	6.5	6	5.5	5.1	4.7
7.5	13	13	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4
7.6	11	11	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	9.6	9.6	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	3
7.8	8.1	8.1	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4	3.7	3.4	3.2	2.9	2.7	2.5
7.9	6.8	6.8	6.6	6	5.6	5.1	4.7	4.3	4	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8	5.6	5.6	5.4	5	4.6	4.2	3.9	3.6	3.3	3	2.8	2.6	2.4	2.2	2	1.9	1.7
8.1	4.6	4.6	4.5	4.1	3.8	3.5	3.2	3	2.7	2.5	2.3	2.1	2	1.8	1.7	1.5	1.4
8.2	3.8	3.8	3.7	3.5	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	3.1	3.1	3.1	2.8	2.6	2.4	2.2	2	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1	0.96
8.4	2.6	2.6	2.5	2.3	2.1	2	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1	0.93	0.86	0.79
8.5	2.1	2.1	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.9	0.83	0.77	0.71	0.65
8.6	1.8	1.8	1.7	1.6	1.5	1.3	1.2	1.1	1	0.96	0.88	0.81	0.75	0.69	0.63	0.59	0.54
8.7	1.5	1.5	1.4	1.3	1.2	1.1	1	0.94	0.87	0.8	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.2	1.2	1.2	1.1	1	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1	1	1	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.4	0.37	0.34	0.32
9	0.88	0.88	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27

Table 12. Acute Standards for Total Ammonia (in mg/L, as N) for Aquatic and Wildlife warmwater, Unionid Mussels Present

For the aquatic and wildlife warmwater uses, unionids will be assumed to be present unless a study is performed demonstrating that they are absent and there is no historic evidence of their presence, or hydrologic modification has altered the flow regime in a way that would prevent their reestablishment.

Temperature (°C)																				
pH	0-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
6.5	51	48	44	41	37	34	32	29	27	25	23	21	19	18	16	15	14	13	12	11
6.6	49	46	42	39	36	33	30	28	26	24	22	20	18	17	16	14	13	12	11	10
6.7	46	44	40	37	34	31	29	27	24	22	21	19	18	16	15	14	13	12	11	9.
Temperature (°C)																				
pH	44	41	38	35	32	30	27	25	23	21	20		18	17	15	14	13	12	11	10	9.
6.9	41	38	35	32	30	28	25	23	21	20	18		17	15	14	13	12	11	10	9.4	8.
7	38	35	33	30	28	25	23	21	20	18	17		15	14	13	12	11	10	9.4	8.6	7.
7.1	34	32	30	27	25	23	21	20	18	17	15		14	13	12	11	10	9.3	8.5	7.9	7.

7.2	31	29	27	25	23	21	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.
7.3	27	26	24	22	20	18	17	16	14	13	12	11	10	9.5	8.7	8	7.4	6.8	6.3	5.
7.4	24	22	21	19	18	16	15	14	13	12	11	9.8	9	8.3	7.7	7	6.5	6	5.5	5.
7.5	21	19	18	17	15	14	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.
7.6	18	17	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.
7.7	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.
7.8	13	12	11	10	9.3	8.5	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4	3.7	3.4	3.2	2.9	2.
7.9	11	9.9	9.1	8.4	7.7	7.1	6.6	3	5.6	5.1	4.7	4.3	4	3.7	3.4	3.1	2.9	2.6	2.4	2.
8	8.8	8.2	7.6	7	6.4	5.9	5.4	5	4.6	4.2	3.9	3.6	3.3	3	2.8	2.6	2.4	2.2	2	1.
8.1	7.2	6.8	6.3	5.8	5.3	4.9	4.5	4.1	3.8	3.5	3.2	3	2.7	2.5	2.3	2.1	2	1.8	1.7	1.
8.2	6	5.6	5.2	4.8	4.4	4	3.7	3.4	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.
8.3	4.9	4.6	4.3	3.9	3.6	3.3	3.1	2.8	2.6	2.4	2.2	2	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1
8.4	4.1	3.8	3.5	3.2	3	2.7	2.5	2.3	2.1	2	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1	0.93	0.
8.5	3.3	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.9	0.83	0.77	0.
8.6	2.8	2.6	2.4	2.2	2	1.9	1.7	1.6	1.5	1.3	1.2	1.1	1	0.96	0.88	0.81	0.75	0.69	0.63	0.
8.7	2.3	2.2	2	1.8	1.7	1.6	1.4	1.3	1.2	1.1	1	0.94	0.87	0.8	0.74	0.68	0.62	0.57	0.53	0.
8.8	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.
8.9	1.6	1.5	1.4	1.3	1.2	1.1	1	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.4	0.37	0.
9	1.4	1.3	1.2	1.1	1	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.

Table 13. Chronic Criteria for Total Ammonia (in mg/L, as N) for Aquatic and Wildlife coldwater and warmwater, Unionid Mussels Present

For the aquatic and wildlife cold and warm water uses, unionids will be assumed to be present unless a study is performed demonstrating that they are absent and there is no historic evidence of their presence, or hydrologic modification has altered the flow regime in a way that would prevent their reestablishment.

Temperature (°C)																		
pH	0-7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6.5	4.9	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2	1.9	1.8	1.6
6.6	4.8	4.5	4.3	4	3.8	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2	1.8	1.7	1.6
6.7	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6
6.8	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3	2.8	2.6	2.4	2.3	2.1	2	1.9	1.8	1.7	1.6
6.9	4.5	4.2	4	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2	1.8	1.7	1.6	1.5
7	4.4	4.1	3.8	3.6	3.4	3.2	3	2.8	2.6	2.4	2.3	2.2	2	1.9	1.8	1.7	1.6	1.5
7.1	4.2	3.9	3.7	3.5	3.2	3	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4

7.2	4	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2	1.8	1.7	1.6	1.5	1.4	1.3
7.3	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.2	2.1	2	1.8	1.7	1.6	1.5	1.4	1.3	1.3
7.4	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2
7.5	3.2	3	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
7.6	2.9	2.8	2.6	2.4	2.3	2.1	2	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.1	0.98
7.7	2.6	2.4	2.3	2.2	2	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1	0.94	0.88
7.8	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1	0.95	0.89	0.84	0.79
7.9	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1	0.95	0.89	0.84	0.79	0.74	0.69
8	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.6
8.1	1.5	1.5	1.4	1.3	1.2	1.1	1.1	0.99	0.92	0.87	0.81	0.76	0.71	0.67	0.63	0.59	0.55	0.52
8.2	1.3	1.2	1.2	1.1	1	0.96	0.9	0.84	0.79	0.74	0.7	0.65	0.61	0.57	0.54	0.5	0.47	0.44
8.3	1.1	1.1	0.99	0.93	0.87	0.82	0.76	0.72	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.4	0.38
8.4	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.5	0.47	0.44	0.41	0.39	0.36	0.34	0.32
8.5	0.8	0.75	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0.4	0.37	0.35	0.33	0.31	0.29	0.27
8.6	0.68	0.64	0.6	0.56	0.53	0.49	0.46	0.43	0.41	0.38	0.36	0.33	0.31	0.29	0.28	0.26	0.24	0.23
8.7	0.57	0.54	0.51	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.3	0.28	0.27	0.25	0.23	0.22	0.21	0.19
8.8	0.49	0.46	0.43	0.4	0.38	0.35	0.33	0.31	0.29	0.27	0.26	0.24	0.23	0.21	0.2	0.19	0.17	0.16
8.9	0.42	0.39	0.37	0.34	0.32	0.3	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14
9	0.36	0.34	0.32	0.3	0.28	0.26	0.24	0.23	0.21	0.2	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12

Table 14. Acute Standards for Total Ammonia (in mg/L, as N) for Aquatic and Wildlife Coldwater, Unionid Mussels Absent

For the aquatic and wildlife coldwater uses, unionids will be assumed to be present unless a study is performed demonstrating that they are absent and there is no historic evidence of their presence, or hydrologic modification has altered the flow regime in a way that would prevent their reestablishment.

Temperature (°C)																
pH	0-14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	33	33	33	33	33	33	33	33	33	33	33	33	33	33	31	29	27
6.6	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	28	26
6.7	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	26	24
6.8	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	25	23
6.9	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	23	21
7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	21	20
7.1	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	19	18

7.2	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	17	16
7.3	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17	16	14
7.4	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	13
7.5	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	11
7.6	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	9.3
7.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.3	8.6	7.9
7.8	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	7.8	7.2	6.6
7.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.5	6	5.5
8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.4	5	4.6
8.1	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.5	4.1	3.8
8.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.7	3.4	3.1
8.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3	2.8	2.6
8.4	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.3	2.1
8.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.9	1.8
8.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.4
8.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.3	1.2
8.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1
8.9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.92	0.85
9	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.85	0.78	0.72

Table 15. Acute Standards for Total Ammonia (in mg/L, as N) for Aquatic and Wildlife Warmwater and Effluent Dependent, Unionid Mussels Absent

For the aquatic and wildlife warmwater uses, unionids will be assumed to be present unless a study is performed demonstrating that they are absent and there is no historic evidence of their presence, or hydrologic modification has altered the flow regime in a way that would prevent their reestablishment. For the aquatic and wildlife effluent dependent uses, unionids will be assumed to be absent.

Temperature (°C)																	
pH	0-14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	51	51	51	51	51	51	51	51	51	48	44	40	37	34	31	29	27
6.6	49	49	49	49	49	49	49	49	49	46	42	39	36	33	30	28	26
6.7	46	46	46	46	46	46	46	46	46	43	40	37	34	31	29	26	24
6.8	44	44	44	44	44	44	44	44	44	41	38	35	32	29	27	25	23
6.9	41	41	41	41	41	41	41	41	41	38	35	32	30	27	25	23	21
7	38	38	38	38	38	38	38	38	38	35	32	30	27	25	23	21	20

7.1	34	34	34	34	34	34	34	34	34	32	29	27	25	23	21	19	18
7.2	31	31	31	31	31	31	31	31	31	29	26	24	22	21	19	17	16
7.3	27	27	27	27	27	27	27	27	27	26	23	22	20	18	17	16	14
7.4	24	24	24	24	24	24	24	24	24	22	21	19	17	16	15	14	13
7.5	21	21	21	21	21	21	21	21	21	19	18	16	15	14	13	12	11
7.6	18	18	18	18	18	18	18	18	18	17	15	14	13	12	11	10	9.3
7.7	15	15	15	15	15	15	15	15	15	14	13	12	11	10	9.3	8.6	7.9
7.8	13	13	13	13	13	13	13	13	13	12	11	10	9.2	8.5	7.8	7.2	6.6
7.9	11	11	11	11	11	11	11	11	11	9.9	9.1	8.4	7.7	7.1	6.5	6	5.5
8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.2	7.5	6.9	6.4	5.9	5.4	5	4.6
8.1	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	6.8	6.2	5.7	5.3	4.9	4.5	4.1	3.8
8.2	6	6	6	6	6	6	6	6	6	5.6	5.1	4.7	4.4	4	3.7	3.4	3.1
8.3	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.6	4.2	3.9	3.6	3.3	3	2.8	2.6
8.4	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.8	3.4	3.2	3	2.7	2.5	2.3	2.1
8.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.1	2.9	2.6	2.4	2.2	2.1	1.9	1.8
8.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.6	2.4	2.2	2	1.9	1.7	1.6	1.4
8.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2	1.8	1.7	1.5	1.4	1.3	1.2
8.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1
8.9	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.2	1.1	1	0.92	0.85
9	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1	0.93	0.85	0.78	0.72

Table 16. Chronic Standards for Total Ammonia (in mg/L, as N) for Aquatic and Wildlife Warmwater and Effluent Dependent, Unionid Mussels Absent

For the aquatic and wildlife warmwater uses, unionids will be assumed to be present unless a study is performed demonstrating that they are absent and there is no historic evidence of their presence, or hydrologic modification has altered the flow regime in a way that would prevent their reestablishment. For the aquatic and wildlife effluent dependent uses, unionids will be assumed to be absent.

Temperature (°C)																					
pH	0-7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	2
6.5	19	17	16	15	14	13	13	12	11	10	9.7	9.1	8.5	8	7.5	7	6.6	6.2	5.8	5
6.6	18	17	16	15	14	13	12	12	11	10	9.6	9	8.4	7.9	7.4	6.9	6.5	6.1	5.7	5
6.7	18	17	16	15	14	13	12	11	11	10	9.4	8.8	8.3	7.7	7.3	6.8	6.4	6	5.6	5
6.8	17	16	15	14	14	13	12	11	10	9.8	9.2	8.6	8.1	7.6	7.1	6.7	6.2	5.8	5.5	5
6.9	17	16	15	14	13	12	12	11	10	9.5	8.9	8.4	7.8	7.4	6.9	6.5	6.1	5.7	5.3	5

7	16	15	14	14	13	12	11	10	9.8	9.2	8.6	8.1	7.6	7.1	6.7	6.2	5.9	5.5	5.1	4
7.1	16	15	14	13	12	11	11	10	9.4	8.8	8.3	7.7	7.3	6.8	6.4	6	5.6	5.3	4.9	4
7.2	15	14	13	12	12	11	10	9.5	9	8.4	7.9	7.4	6.9	6.5	6.1	5.7	5.3	5	4.7	4
7.3	14	13	12	12	11	10	9.6	9	8.4	7.9	7.4	6.9	6.5	6.1	5.7	5.4	5	4.7	4.4	4
7.4	13	12	12	11	10	9.5	9	8.4	7.9	7.4	6.9	6.5	6.1	5.7	5.3	5	4.7	4.4	4.1	3
7.5	12	11	11	10	9.4	8.8	8.2	7.7	7.2	6.8	6.4	6	5.6	5.2	4.9	4.6	4.3	4.1	3.8	3
7.6	11	10	10	9.1	8.5	8	7.5	7	6.6	6.2	5.8	5.4	5.1	4.8	4.5	4.2	3.9	3.7	3.5	3
7.7	9.9	9.3	8.7	8.1	7.7	7.2	6.8	6.3	5.9	5.6	5.2	4.9	4.6	4.3	4	3.8	3.5	3.3	3.1	2
7.8	8.8	8.3	7.8	7.3	6.8	6.4	6	5.6	5.3	5	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3	2.8	2
7.9	7.8	7.3	6.8	6.4	6	5.6	5.3	5	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3	2.8	2.6	2.4	2
8	6.8	6.3	6	5.6	5.2	4.9	4.6	4.3	4	3.8	3.6	3.3	3.1	2.9	2.7	2.6	2.4	2.3	2.1	2
8.1	5.8	5.5	5.1	4.8	4.5	4.2	4	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2	1.8	1.
8.2	5	4.7	4.4	4.1	3.9	3.6	3.4	3.2	3	2.8	2.6	2.5	2.3	2.2	2	1.9	1.8	1.7	1.6	1.
8.3	4.2	4	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2	1.8	1.7	1.6	1.5	1.4	1.3	1.
8.4	3.6	3.4	3.2	3	2.8	2.6	2.4	2.3	2.1	2	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.
8.5	3	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1	0.95	0
8.6	2.6	2.4	2.2	2.1	2	1.9	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1	0.97	0.91	0.85	0.8	0
8.7	2.2	2	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1	0.93	0.88	0.82	0.77	0.72	0.68	0
8.8	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1	0.96	0.9	0.85	0.79	0.74	0.7	0.65	0.61	0.58	0
8.9	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1	0.94	0.88	0.82	0.77	0.72	0.68	0.64	0.6	0.56	0.52	0.49	0
9	1.4	1.3	1.2	1.1	1	0.98	0.92	0.86	0.81	0.76	0.71	0.66	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0

Table 17. Chronic Criteria for Total Ammonia (in mg/L, as N) for Aquatic and Wildlife coldwater, Unionid Mussels Absent

For the aquatic and wildlife coldwater uses, unionids will be assumed to be present unless a study is performed demonstrating that they are absent and there is no historic evidence of their presence, or hydrologic modification has altered the flow regime in a way that would prevent their reestablishment.

Temp era tu re (°C)																	
pH	0-14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7	6.6	6.2	5.8	5.4	5.1	4.8	4.5	4.2
6.6	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9	6.5	6.1	5.7	5.4	5	4.7	4.4	4.1
6.7	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	6.8	6.4	6	5.6	5.3	4.9	4.6	4.3	4.1
6.8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.6	6.2	5.8	5.5	5.1	4.8	4.5	4.2	4
6.9	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.5	6.1	5.7	5.3	5	4.7	4.4	4.1	3.9

7	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.2	5.8	5.5	5.1	4.8	4.5	4.2	4	3.7
7.1	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6	5.6	5.3	4.9	4.6	4.3	4.1	3.8	3.6
7.2	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.7	5.3	5	4.7	4.4	4.1	3.9	3.6	3.4
7.3	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.4	5	4.7	4.4	4.1	3.9	3.6	3.4	3.2
7.4	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5	4.7	4.4	4.1	3.9	3.6	3.4	3.2	3
7.5	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8
7.6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.2	3.9	3.7	3.5	3.2	3	2.9	2.7	2.5
7.7	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.3
7.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.2	3	2.8	2.6	2.4	2.3	2.1	2
7.9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3	2.8	2.6	2.4	2.3	2.1	2	1.9	1.8
8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.4	2.3	2.1	2	1.9	1.7	1.6	1.5
8.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3
8.2	2	2	2	2	2	2	2	2	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1
8.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1	0.96
8.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1.1	0.99	0.93	0.87	0.81
8.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1	0.95	0.89	0.83	0.78	0.73	0.69
8.6	1	1	1	1	1	1	1	1	0.97	0.91	0.85	0.8	0.75	0.7	0.66	0.62	0.58
8.7	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.82	0.77	0.72	0.68	0.64	0.6	0.56	0.52	0.49
8.8	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.7	0.65	0.61	0.58	0.54	0.51	0.47	0.44	0.42
8.9	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.6	0.56	0.52	0.49	0.46	0.43	0.41	0.38	0.36
9	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.51	0.48	0.45	0.42	0.4	0.37	0.35	0.33	0.31

(Appendix A repealed; new Appendix A adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Appendix A, Table 2 amended to correct references to footnotes (Supp. 02-4). Amended by final rulemaking at 9 A.A.R. 716, effective April 8, 2003 (Supp. 03-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016. Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

APPENDIX B. Surface Waters and Designated Uses

(Coordinates are from the North American Datum of 1983 (NAD83). All latitudes in Arizona are north and all longitudes are west, but the negative signs are not included in the Appendix B table. Some web-based mapping systems require a negative sign before the longitude values to indicate it is a west longitude.)

Watersheds:

BW = Bill Williams

CG = Colorado - Grand Canyon

CL = Colorado - Lower Gila

LC = Little Colorado

MG = Middle Gila

SC = Santa Cruz - Rio Magdelena - Rio Sonoyta

SP = San Pedro - Willcox Playa - Rio Yaqui

SR = Salt River

UG = Upper Gila

VR = Verde River

Other Abbreviations:

WWTP = Wastewater Treatment Plant

Km = kilometers

Watershed	Surface Waters	Segment Description and Location (Latitude and Longitudes are in NAD 83)	Lake Category	Aquatic and Wildlife				H
				A&Wc	A&Ww	A& We	A&We dw	F
BW	Alamo Lake	34°14'06"/113°35'00"	Deep		A&Ww			F
BW	Big Sandy River	Headwaters to Alamo Lake			A&Ww			F
BW	Bill Williams River	Alamo Lake to confluence with			A&Ww			F

		Colorado River						
BW	Blue Tank	34°40'14"/112°58'17"			A&Ww			F
BW	Boulder Creek	Headwaters to confluence with unnamed tributary at 34°41'13"/ 113°03'37"		A&Wc				F
BW	Boulder Creek	Below confluence with unnamed tributary to confluence with Burro Creek			A&Ww			F
BW	Burro Creek (OAW)	Headwaters to confluence with Boulder Creek			A&Ww			F
BW	Burro Creek	Below confluence with Boulder Creek to confluence with Big Sandy River			A&Ww			F
BW	Carter Tank	34°52'27"/112°57'31"			A&Ww			F
BW	Conger Creek	Headwaters to confluence with unnamed tributary at 34°45'15"/ 113°05'46"		A&Wc				F
BW	Conger Creek	Below confluence with unnamed tributary to confluence with Burro Creek			A&Ww			F
BW	Copper Basin Wash	Headwaters to confluence with unnamed tributary at 34°28'12"/ 112°35'33"		A&Wc				F
BW	Copper Basin Wash	Below confluence with unnamed tributary to confluence with Skull Valley Wash				A&We		
BW	Cottonwood Canyon	Headwaters to Bear Trap Spring		A&Wc				F
BW	Cottonwood Canyon	Below Bear Trap Spring to confluence at Sycamore Creek			A&Ww			F
BW	Date Creek	Headwaters to confluence with Santa			A&Ww			F

		Maria River						
BW	Francis Creek (OAW)	Headwaters to confluence with Burro Creek			A&Ww			F
BW	Kirkland Creek	Headwaters to confluence with Santa Maria River			A&Ww			F
BW	Knight Creek	Headwaters to confluence with Big Sandy River			A&Ww			F
BW	Peeples Canyon (OAW)	Headwaters to confluence with Santa Maria River			A&Ww			F
BW	Red Lake	35°12'18"/113°03'57"	Sedimentary		A&Ww			F
BW	Santa Maria River	Headwaters to Alamo Lake			A&Ww			F
BW	Trout Creek	Headwaters to confluence with unnamed tributary at 35°06'47"/ 113°13'01"		A&Wc				F
BW	Trout Creek	Below confluence with unnamed tributary to confluence with Knight Creek			A&Ww			F
CG	Agate Canyon	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Beaver Dam Wash	Headwaters to confluence with the Virgin River			A&Ww			F
CG	Big Springs Tank	36°36'08"/112°21'01"		A&Wc				F
CG	Boucher Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Bright Angel Creek	Headwaters to confluence with Roaring Springs Creek		A&Wc				F
CG	Bright Angel Creek	Below Roaring Spring Springs Creek to confluence with			A&Ww			F

		Colorado River						
CG	Bright Angel Wash	Headwaters to Grand Canyon National Park South Rim WWTP outfall at 36°02'59"/112°09'02"				A&We		
CG	Bright Angel Wash (EDW)	Grand Canyon National Park South Rim WWTP outfall to Coconino Wash					A&Wedw	
CG	Bulrush Canyon Wash	Headwaters to confluence with Kanab Creek				A&We		
CG	Cataract Creek	Headwaters to Santa Fe Reservoir		A&Wc				F
CG	Cataract Creek	Santa Fe Reservoir to City of Williams WWTP outfall at 35°14'40"/ 112°11'18"		A&Wc				F
CG	Cataract Creek (EDW)	City of Williams WWTP outfall to 1 km downstream					A&Wedw	
CG	Cataract Creek	Red Lake Wash to Havasupai Indian Reservation boundary				A&We		
CG	Cataract Lake	35°15'04"/112°12'58"	Igneous	A&Wc				F
CG	Chuar Creek	Headwaters to confluence with unnamed tributary at 36°11'35"/ 111°52'20"		A&Wc				F
CG	Chuar Creek	Below unnamed tributary to confluence with the Colorado River			A&Ww			F
CG	City Reservoir	35°13'57"/112°11'25"	Igneous	A&Wc				F
CG	Clear Creek	Headwaters to confluence with unnamed tributary at 36°07'33"/ 112°00'03"		A&Wc				F

CG	Clear Creek	Below confluence with unnamed tributary to confluence with Colorado River			A&Ww			F
CG	Coconino Wash (EDW)	South Grand Canyon Sanitary District Tusayan WRF outfall at 35°58'39"/112°08'25" to 1 km downstream					A&Wedw	
CG	Colorado River	Lake Powell to Lake Mead		A&Wc				F
CG	Cottonwood Creek	Headwaters to confluence with unnamed tributary at 35°20'46"/ 113°35'31"		A&Wc				F
CG	Cottonwood Creek	Below confluence with unnamed tributary to confluence with Colorado River			A&Ww			F
CG	Crystal Creek	Headwaters to confluence with unnamed tributary at 36°13'41"/ 112°11'49"		A&Wc				F
CG	Crystal Creek	Below confluence with unnamed tributary to confluence with Colorado River			A&Ww			F
CG	Deer Creek	Headwaters to confluence with unnamed tributary at 36°26'15"/ 112°28'20"		A&Wc				F
CG	Deer Creek	Below confluence with unnamed tributary to confluence with Colorado River			A&Ww			F
CG	Detrital Wash	Headwaters to Lake Mead				A&We		
CG	Dogtown Reservoir	35°1240"/112°07'54"	Igneous	A&Wc				F
CG	Dragon Creek	Headwaters to confluence with Milk		A&Wc				F

		Creek						
CG	Dragon Creek	Below confluence with Milk Creek to confluence with Crystal Creek			A&Ww			F
CG	Garden Creek	Headwaters to confluence with Pipe Creek			A&Ww			F
CG	Gonzalez Lake	35°15'26"/112°12'09"	Shallow		A&Ww			F
CG	Grand Wash	Headwaters to Colorado River				A&We		
CG	Grapevine Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Grapevine Wash	Headwaters to Colorado River				A&We		
CG	Hakatai Canyon	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Hance Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Havasu Creek	From the Havasupai Indian Reservation boundary to confluence with the Colorado River			A&Ww			F
CG	Hermit Creek	Headwaters to Hermit Pack Trail crossing at 36°03'38"/112°14'00"		A&Wc				F
CG	Hermit Creek	Below Hermit Pack Trail crossing to confluence with the Colorado River			A&Ww			F
CG	Horn Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Hualapai Wash	Headwaters to Lake Mead				A&We		
CG	Jacob Lake	36°4227"/112°13'50"	Sedimentary	A&Wc				F

CG	Kaibab Lake	35°17'04"/112°09'32"	Igneous	A&Wc				F
CG	Kanab Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Kwagunt Creek	Headwaters to confluence with unnamed tributary at 36°13'37"/ 111°54'50"		A&Wc				F
CG	Kwagunt Creek	Below confluence with unnamed tributary to confluence with the Colorado River			A&Ww			F
CG	Lake Mead	36°06'18"/114°26'33"	Deep	A&Wc				F
CG	Lake Powell	36°59'53"/111°08'17"	Deep	A&Wc				F
CG	Lonetree Canyon Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Matkatamiba Creek	Below Havasupai Indian Reservation boundary to confluence with the Colorado River			A&Ww			F
CG	Monument Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Nankoweap Creek	Headwaters to confluence with unnamed tributary at 36°15'29"/ 111°57'26"		A&Wc				F
CG	Nankoweap Creek	Below confluence with unnamed tributary to confluence with Colorado River			A&Ww			F
CG	National Canyon Creek	Headwaters to Hualapai Indian Reservation boundary at 36°15'15"/ 112°52'34"			A&Ww			F
CG	North Canyon Creek	Headwaters to confluence with unnamed tributary at		A&Wc				F

		36°33'58"/ 111°55'41"						
CG	North Canyon Creek	Below confluence with unnamed tributary to confluence with Colorado River			A&Ww			F
CG	Olo Canyon	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Parashant Canyon	Headwaters to confluence with unnamed tributary at 36°21'02"/ 113°27'56"		A&Wc				F
CG	Parashant Canyon	Below confluence with unnamed tributary to confluence with the Colorado River			A&Ww			F
CG	Paria River	Utah border to confluence with the Colorado River			A&Ww			F
CG	Phantom Creek	Headwaters to confluence with unnamed tributary at 36°09'29"/ 112°08'13"		A&Wc				F
CG	Phantom Creek	Below confluence with unnamed tributary to confluence with Bright Angel Creek			A&Ww			F
CG	Pipe Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Red Canyon Creek	Headwaters to confluence with the Colorado River '			A&Ww			F
CG	Red Lake	35°40'03"/114°04'07"			A&Ww			F
CG	Roaring Springs	36°11'45"/112°02'06"		A&Wc				F
CG	Roaring Springs Creek	Headwaters to confluence with Bright Angel Creek		A&Wc				F
CG	Rock Canyon	Headwaters to confluence with				A&We		

		Truxton Wash						
CG	Royal Arch Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Ruby Canyon	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Russell Tank	35°52'21"/111°52'45"		A&Wc				F
CG	Saddle Canyon Creek	Headwaters to confluence with unnamed tributary at 36°21'36"/ 112°22'43"		A&Wc				F
CG	Saddle Canyon Creek	Below confluence with unnamed tributary to confluence with Colorado River			A&Ww			F
CG	Santa Fe Reservoir	35°1431"/112°11'10"	Igneous	A&Wc				F
CG	Sapphire Canyon	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Serpentine Canyon	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Shinumo Creek	Headwaters to confluence with unnamed tributary at 36°18'18"/ 112°18'07"		A&Wc				F
CG	Shinumo Creek	Below confluence with unnamed tributary to confluence with the Colorado River			A&Ww			F
CG	Short Creek	Headwaters to confluence with Fort Pearce Wash				A&We		
CG	Slate Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Spring Canyon Creek	Headwaters to confluence with the Colorado River			A&Ww			F

CG	Stone Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Tapeats Creek	Headwaters to confluence with the Colorado River		A&Wc				F
CG	Thunder River	Headwaters to confluence with Tapeats Creek		A&Wc				F
CG	Trail Canyon Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Transept Canyon	Headwaters to Grand Canyon National Park North Rim WWTP outfall at 36°12'20"/112°03'35"				A&We		
CG	Transept Canyon (EDW)	Grand Canyon National Park North Rim WWTP outfall to 1 km downstream					A&Wedw	
CG	Transept Canyon	From 1 km downstream of the Grand Canyon National Park North Rim WWTP outfall to confluence with Bright Angel Creek				A&We		
CG	Travertine Canyon Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Truxton Wash	Headwaters to Red Lake				A&We		
CG	Turquoise Canyon	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Unkar Creek	Below confluence with unnamed tributary at 36°07'54"/111°54'06" to confluence with Colorado River			A&Ww			F

CG	Unnamed Wash (EDW)	Grand Canyon National Park Desert View WWTP outfall at 36°02'06"/ 111°49'13" to confluence with Cedar Canyon					A&Wedw	
CG	Unnamed Wash (EDW)	Valle Airpark WRF outfall at 35°38'34"/112°09'22" to confluence with Spring Valley Wash					A&Wedw	
CG	Vasey's Paradise	A spring at 36°29'52"/111°51'26"		A&Wc				F
CG	Virgin River	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Vishnu Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	Warm Springs Creek	Headwaters to confluence with the Colorado River			A&Ww			F
CG	West Cataract Creek	Headwaters to confluence with Cataract Creek		A&Wc				F
CG	White Creek	Headwaters to confluence with unnamed tributary at 36°18'45"/ 112°21'03"		A&Wc				F
CG	White Creek	Below confluence with unnamed tributary to confluence with the Colorado River			A&Ww			F
CG	Wright Canyon Creek	Headwaters to confluence with unnamed tributary at 35°20'48"/ 113°30'40"		A&Wc				F
CG	Wright Canyon Creek	Below confluence with unnamed tributary to confluence with Truxton Wash			A&Ww			F

CL	A10 Backwater	33°31'45"/114°33'19"	Shallow		A&Ww			F
CL	A7 Backwater	33°34'27"/114°32'04"	Shallow		A&Ww			F
CL	Adobe Lake	33°02'36"/114°39'26"	Shallow		A&Ww			F
CL	Cibola Lake	33°1401"/114°40'31"	Shallow		A&Ww			F
CL	Clear Lake	33°01'59"/114°31'19"	Shallow		A&Ww			F
CL	Columbus Wash	Headwaters to confluence with the Gila River				A&We		
CL	Colorado River	Lake Mead to Topock Marsh		A&Wc				F
CL	Colorado River	Topock Marsh to Morelos Dam			A&Ww			F
CL	Gila River	Painted Rock Dam to confluence with the Colorado River			A&Ww			F
CL	Holy Moses Wash	Headwaters to City of Kingman Downtown WWTP outfall at 35°10'33"/ 114°03'46"				A&We		
CL	Holy Moses Wash (EDW)	City of Kingman Downtown WWTP outfall to 3 km downstream					A&Wedw	
CL	Holy Moses Wash	From 3 km downstream of City of Kingman Downtown WWTP outfall to confluence with Sawmill Wash				A&We		
CL	Hunter's Hole Backwa-te r	32°31'13"/114°48'07"	Shallow		A&Ww			F
CL	Imperial Reservoir	32°53'02"/114°27'54"	Shallow		A&Ww			F
CL	Island Lake	33°01'44"/114°36'42"	Shallow		A&Ww			F
CL	Laguna Reservoir	32°51'35"/114°28'29"	Shallow		A&Ww			F
CL	Lake Havasu	34°35'18"/114°25'47"	Deep		A&Ww			F

CL	Lake Mohave	35°26'58"/114°38'30"	Deep	A&Wc				F
CL	Martinez Lake	32°5849"/114°28'09"	Shallow		A&Ww			F
CL	Mittry Lake	32°4917"/114°27'54"	Shallow		A&Ww			F
CL	Mohave Wash	Headwaters to Lower Colorado River				A&We		
CL	Nortons Lake	33°0230"/114°37'59"	Shallow		A&Ww			F
CL	Painted Rock (Borrow Pit) Lake	33°0455"/113°01'17"	Sedimentary		A&Ww			F
CL	Pretty Water Lake	33°1951"/114°4219"	Shallow		A&Ww			F
CL	Quigley Pond	32°43'40"/113°57'44"	Shallow		A&Ww			F
CL	Redondo Lake	32°44'32"/114°2903"	Shallow		A&Ww			F
CL	Sacramento Wash	Headwaters to Topock Marsh				A&We		
CL	Sawmill Canyon	Headwaters to abandoned gaging station at 35°09'45"/113°57'56"			A&Ww			F
CL	Sawmill Canyon	Below abandoned gaging station to confluence with Holy Moses Wash				A&We		
CL	Topock Marsh	34°43'27"/114°28'59"	Shallow		A&Ww			F
CL	Tyson Wash (EDW)	Town of Quartzsite WWTP outfall at 33°42'39"/ 114°13'10" to 1 km downstream					A&Wedw	
CL	Wellton Canal	Wellton-Mohawk Irrigation District						
CL	Wellton Ponds	32°40'32"/114°00'26"			A&Ww			F
CL	Yuma Proving Ground Pond	32°50'58"/114°26'14"			A&Ww			F
CL	Yuma Area Canals	Above municipal water treatment plant intakes						

CL	Yuma Area Canals	Below municipal water treatment plant intakes and all drains						
LC	Als Lake	35°02'10"/111°25'17"	Igneous		A&Ww			F
LC	Ashurst Lake	35°01'06"/111°2418"	Igneous	A&Wc				F
LC	Atcheson Reservoir	33°5959"/109°20'43"	Igneous		A&Ww			F
LC	Auger Creek	Headwaters to confluence with Nutrioso Creek		A&Wc				F
LC	Barbershop Canyon Creek	Headwaters to confluence with East Clear Creek		A&Wc				F
LC	Bear Canyon Creek	Headwaters to confluence with General Springs Canyon		A&Wc				F
LC	Bear Canyon Creek	Headwaters to confluence with Willow Creek		A&Wc				F
LC	Bear Canyon Lake	34°24'00"/111°00'06"	Sedimentary	A&Wc				F
LC	Becker Lake	34°09'11"/109°18'23"	Shallow	A&Wc				F
LC	Billy Creek	Headwaters to confluence with Show Low Creek		A&Wc				F
LC	Black Canyon	Headwaters to confluence with Chevelon Creek		A&Wc				F
LC	Black Canyon Lake	34°20'32"/110°40'13"	Sedimentary	A&Wc				F
LC	Boot Lake	34°58'54"/111°20'11"	Igneous	A&Wc				F
LC	Bow and Arrow Wash	Headwaters to confluence with Rio de Flag				A&We		
LC	Buck Springs Canyon Creek	Headwaters to confluence with Leonard Canyon Creek		A&Wc				F
LC	Bunch Reservoir	34°0220"/109°26'48"	Igneous	A&Wc				F

LC	Camillo Tank	34°55'03"/111°22'40"	Igneous		A&Ww			F
LC	Carnero Lake	34°06'57"/109°31'42"	Shallow	A&Wc				F
LC	Chevelon Canyon Lake	34°2918"/110°49'30"	Sedimentary	A&Wc				F
LC	Chevelon Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Chevelon Creek, West Fork	Headwaters to confluence with Chevelon Creek		A&Wc				F
LC	Chilson Tank	34°51'43"/111°22'54"	Igneous		A&Ww			F
LC	Clear Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Clear Creek Reservoir	34°57'09"/110°39'14"	Shallow	A&Wc				F
LC	Coconino Reservoir	35°00'05"/111°2410"	Igneous	A&Wc				F
LC	Colter Creek	Headwaters to confluence with Nutrioso Creek		A&Wc				F
LC	Colter Reservoir	33°56'39"/109°2853"	Shallow	A&Wc				F
LC	Concho Creek	Headwaters to confluence with Carrizo Wash		A&Wc				F
LC	Concho Lake	34°26'37"/109°37'40"	Shallow	A&Wc				F
LC	Cow Lake	34°53'14"/111°18'51"	Igneous		A&Ww			F
LC	Coyote Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Cragin Reservoir (formerly Blue Ridge Reservoir)	34°3240"/111°11'33"	Deep	A&Wc				F
LC	Crisis Lake (Snake Tank #2)	34°47'51"/111°17'32"			A&Ww			F
LC	Dane Canyon	Headwaters to		A&Wc				F

	Creek	confluence with Barbershop Canyon Creek						
LC	Daves Tank	34°44'22"/111°17'15"			A&Ww			F
LC	Deep Lake	35°03'34"/111°25'00"	Igneous		A&Ww			F
LC	Dry Lake (EDW)	34°3802"/110°23'40"	EDW				A&Wedw	
LC	Ducksnest Lake	34°5914"/111°23'57"			A&Ww			F
LC	East Clear Creek	Headwaters to confluence with Clear Creek		A&Wc				F
LC	Ellis Wiltbank Reservoir	34°05'25"/109°2825"	Igneous		A&Ww			F
LC	Estates at Pine Canyon lakes (EDW)	35°09'32"/111°3826"	EDW				A&Wedw	
LC	Fish Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Fool's Hollow Lake	34°16'30"/110°03'43"	Igneous	A&Wc				F
LC	General Springs Canyon Creek	Headwaters to confluence with East Clear Creek		A&Wc				F
LC	Geneva Reservoir	34°01'45"/109°31'46"	Igneous		A&Ww			F
LC	Hall Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Hart Canyon Creek	Headwaters to confluence with Willow Creek		A&Wc				F
LC	Hay Lake	34°00'11"/109°25'57"	Igneous	A&Wc				F
LC	Hog Wallow Lake	33°5857"/109°25'39"	Igneous	A&Wc				F
LC	Horse Lake	35°03'55"/111°27'50"			A&Ww			F
LC	Hulsey Creek	Headwaters to		A&Wc				F

		confluence with Nutrioso Creek						
LC	Hulsey Lake	33°55'58"/109°0940"	Sedimentary	A&Wc				F
LC	Indian Lake	35°00'39"/111°22'41"			A&Ww			F
LC	Jacks Canyon Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Jarvis Lake	33°58'59"/109°12'36"	Sedimentary		A&Ww			F
LC	Kinnikinick Lake	34°53'53"/111°18'18"	Igneous	A&Wc				F
LC	Knoll Lake	34°25'38"/111°05'13"	Sedimentary	A&Wc				F
LC	Lake Humphreys (EDW)	35°11'51"/111°35'19"	EDW				A&Wedw	
LC	Lake Mary, Lower	35°06'21"/111°34'38"	Igneous	A&Wc				F
LC	Lake Mary, Upper	35°03'23"/111°28'34"	Igneous	A&Wc				F
LC	Lake of the Woods	34°0940"/109°58'47"	Igneous	A&Wc				F
LC	Lee Valley Creek (OAW)	Headwaters to Lee Valley Reservoir		A&Wc				F
LC	Lee Valley Creek	From Lee Valley Reservoir to confluence with the East Fork of the Little Colorado River		A&Wc				F
LC	Lee Valley Reservoir	33°56'29"/109°30'04"	Igneous	A&Wc				F
LC	Leonard Canyon Creek	Headwaters to confluence with Clear Creek		A&Wc				F
LC	Leonard Canyon Creek, East Fork	Headwaters to confluence with Leonard Canyon Creek		A&Wc				F
LC	Leonard Canyon Creek, Middle Fork	Headwaters to confluence with Leonard Canyon, West Fork		A&Wc				F

LC	Leonard Canyon Creek, West Fork	Headwaters to confluence with Leonard Canyon, East Fork		A&Wc				F
LC	Lily Creek	Headwaters to confluence with Coyote Creek		A&Wc				F
LC	Little Colorado River	Headwaters to Lyman Reservoir		A&Wc				F
LC	Little Colorado River	Below Lyman Reservoir to confluence with the Puerco River		A&Wc				F
LC	Little Colorado River	Below Puerco River confluence to the Colorado River, excluding segments on Native American Lands			A&Ww			F
LC	Little Colorado River, East Fork	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Little Colorado River, South Fork	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Little Colorado River, West Fork (OAW)	Headwaters to Government Springs		A&Wc				F
LC	Little Colorado River, West Fork	Below Government Springs to confluence with the Little Colorado River		A&Wc				F
LC	Little George Reservoir	34°00'37"/109°19'15"	Igneous		A&Ww			F
LC	Little Mormon Lake	34°17'00"/109°58'06"	Igneous		A&Ww			F
LC	Little Ortega Lake	34°22'47"/109°40'06"	Igneous	A&Wc				F

LC	Long Lake, Lower	34°47'16"/111°12'40"	Igneous	A&Wc				F
LC	Long Lake, Upper	35°00'08"/111°21'23"	Igneous	A&Wc				F
LC	Long Tom Tank	34°20'35"/110°49'22"		A&Wc				F
LC	Lower Walnut Canyon Lake (EDW)	35°1204"/111°34'07"	EDW				A&Wedw	
LC	Lyman Reservoir	34°21'21"/109°21'35"	Deep	A&Wc				F
LC	Mamie Creek	Headwaters to confluence with Coyote Creek		A&Wc				F
LC	Marshall Lake	35°07'18"/111°32'07"	Igneous	A&Wc				F
LC	McKay Reservoir	34°01'27"/109°13'48"		A&Wc				F
LC	Merritt Draw Creek	Headwaters to confluence with Barbershop Canyon Creek		A&Wc				F
LC	Mexican Hay Lake	34°01'58"/109°21'25"	Igneous	A&Wc				F
LC	Milk Creek	Headwaters to confluence with Hulsey Creek		A&Wc				F
LC	Miller Canyon Creek	Headwaters to confluence with East Clear Creek		A&Wc				F
LC	Miller Canyon Creek, East Fork	Headwaters to confluence with Miller Canyon Creek		A&Wc				F
LC	Mineral Creek	Headwaters to Little Ortega Lake		A&Wc				F
LC	Mormon Lake	34°56'38"/111°27'25"	Shallow	A&Wc				F
LC	Morton Lake	34°53'37"/111°17'41"	Igneous	A&Wc				F

LC	Mud Lake	34°55'19"/111°21'29"	Shallow		A&Ww			F
LC	Ned Lake (EDW)	34°17'17"/110°03'22"	EDW				A&Wedw	
LC	Nelson Reservoir	34°02'52"/109°11'19"	Sedimentary	A&Wc				F
LC	Norton Reservoir	34°03'57"/109°31'27"	Igneous		A&Ww			F
LC	Nutrioso Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Paddy Creek	Headwaters to confluence with Nutrioso Creek		A&Wc				F
LC	Phoenix Park Wash	Headwaters to Dry Lake				A&We		
LC	Pierce Seep	34°23'39"/110°31'17"		A&Wc				
LC	Pine Tank	34°46'49"/111°17'21"	Igneous		A&Ww			F
LC	Pintail Lake (EDW)	34°18'05"/110°01'21"	EDW				A&Wedw	
LC	Porter Creek	Headwaters to confluence with Show Low Creek		A&Wc				F
LC	Potato Lake	35°03'15"/111°24'13"	Igneous	A&Wc				F
LC	Pratt Lake	34°01'32"/109°04'18"	Sedimentary	A&Wc				F
LC	Puerco River	Headwaters to confluence with the Little Colorado River			A&Ww			F
LC	Puerco River (EDW)	Sanders Unified School District WWTP outfall at 35°12'52"/109°19'40" to 0.5 km downstream					A&Wedw	
LC	Rainbow Lake	34°0900"/109°59'09"	Shallow Igneous	A&Wc				F
LC	Reagan Reservoir	34°0209"/109°08'41"	Igneous		A&Ww			F
LC	Rio de Flag	Headwaters to City of Flagstaff WWTP outfall at 35°12'21"/111°39'17"				A&We		
LC	Rio de Flag	From City of Flagstaff					A&Wedw	

	(EDW)	WWTP outfall to the confluence with San Francisco Wash						
LC	River Reservoir	34°0201"/1 09°26'07"	Igneous	A&Wc				F
LC	Rogers Reservoir	33°56'30"/109°16'20"	Igneous		A&Ww			F
LC	Rudd Creek	Headwaters to confluence with Nutrioso Creek		A&Wc				F
LC	Russel Reservoir	33°59'29"/109°20'01"	Igneous		A&Ww			F
LC	San Salvador Reservoir	33°58'51"/109°19'55"	Igneous	A&Wc				F
LC	Scott Reservoir	34°10'31"/109°57'31"	Igneous	A&Wc				F
LC	Show Low Creek	Headwaters to confluence with Silver Creek		A&Wc				F
LC	Show Low Lake	34°11'36"/110°00'12"	Igneous	A&Wc				F
LC	Silver Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Slade Reservoir	33°59'41"/109°20'26"	Igneous		A&Ww			F
LC	Soldiers Annex Lake	34°47'15"/111°13'51"	Igneous	A&Wc				F
LC	Soldiers Lake	34°47'47"/111°14'04"	Igneous	A&Wc				F
LC	Spaulding Tank	34°30'17"/111°02'06"			A&Ww			F
LC	Sponseller Lake	34°1409"/109°50'45"	Igneous	A&Wc				F
LC	St Johns Reservoir (Little Reservoir)	34°2910"/109°22'06"	Igneous		A&Ww			F
LC	Telephone Lake (EDW)	34°17'35"/110°02'42"	EDW				A&Wedw	
LC	Tremaine	34°46'02"/111°13'51"	Igneous	A&Wc				F

	Lake							
LC	Tunnel Reservoir	34°01'53"/109°26'34"	Igneous	A&Wc				F
LC	Turkey Draw (EDW)	High Country Pines II WWTP outfall at 33°25'35"/ 110°38'13" to confluence with Black Canyon Creek					A&Wedw	
LC	Unnamed Wash (EDW)	Bison Ranch WWTP outfall at 34°23'31"/110°31'29" to Pierce Seep					A&Wedw	
LC	Unnamed Wash (EDW)	Black Mesa Ranger Station WWTP outfall at 34°23'35"/110°33'36" to confluence of Oklahoma Flat Draw					A&Wedw	
LC	Vail Lake	35°05'23"/111°30'46"	Igneous	A&Wc				F
LC	Walnut Creek	Headwaters to confluence with Billy Creek		A&Wc				F
LC	Water Canyon Creek	Headwaters to confluence with the Little Colorado River		A&Wc				F
LC	Water Canyon Reservoir	34°00'16"/109°20'05"	Igneous		A&Ww			F
LC	Whale Lake (EDW)	35°11'13"/111°35'21"	EDW				A&Wedw	
LC	Whipple Lake	'34°16'49"/109°58'29"	Igneous		A&Ww			F
LC	White Mountain Lake	34°21'57"/109°59'21"	Igneous	A&Wc				F
LC	White Mountain Reservoir	34°00'12"/109°30'39"	Igneous	A&Wc				F
LC	Willow Creek	Headwaters to confluence with Clear Creek		A&Wc				F

LC	Willow Springs Canyon Creek	Headwaters to confluence with Chevelon Creek		A&Wc				F
LC	Willow Springs Lake	34°18'13"/110°52'16"	Sedimentary	A&Wc				F
LC	Woodland Reservoir	34°07'35"/109°57'01"	Igneous	A&Wc				F
LC	Woods Canyon Creek	Headwaters to confluence with Chevelon Creek		A&Wc				F
LC	Woods Canyon Lake	34°20'09"/110°56'45"	Sedimentary	A&Wc				F
LC	Zuni River	Headwaters to confluence with the Little Colorado River		A&Wc				F
MG	Agua Fria River	Headwaters to confluence with unnamed tributary at 34°35'14"/ 112°16'18"				A&We		
MG	Agua Fria River (EDW)	Below confluence with unnamed tributary to State Route 169					A&Wedw	
MG	Agua Fria River	From State Route 169 to Lake Pleasant			A&Ww			F
MG	Agua Fria River	Below Lake Pleasant to the City of El Mirage WWTP at ' 33°34'20"/ 112°18'32"				A&We		
MG	Agua Fria River (EDW)	From City of El Mirage WWTP outfall to 2 km downstream					A&Wedw	
MG	Agua Fria River	Below 2 km downstream of the City of El Mirage WWTP to City of Avondale WWTP outfall at 33°23'55"/112°21'16"				A&We		
MG	Agua Fria River	From City of Avondale WWTP outfall to confluence with Gila					A&Wedw	

		River						
MG	Alvord Park Lake	35th Avenue & Baseline Road, Phoenix at 33°22'23"/ 112°08'20"	Urban		A&Ww			
MG	Andorra Wash	Headwaters to confluence with Cave Creek Wash				A&We		
MG	Antelope Creek	Headwaters to confluence with Martinez Wash			A&Ww			F
MG	Arlington Canal	From Gila River at 33°20'54"/112°35'39" to Gila River at 33°13'44"/ 112°46'15"						
MG	Ash Creek	Headwaters to confluence with Tex Canyon		A&Wc				F
MG	Ash Creek	Below confluence with Tex Canyon to confluence with Agua Fria River			A&Ww			F
MG	Beehive Tank	32°52'37"/111°02'20"			A&Ww			F
MG	Big Bug Creek	Headwaters to confluence with Eugene Gulch		A&Wc				F
MG	Big Bug Creek	Below confluence with Eugene Gulch to confluence with Agua Fria River			A&Ww			F
MG	Black Canyon Creek	Headwaters to confluence with the Agua Fria River			A&Ww			F
MG	Blind Indian Creek	Headwaters to confluence with the Hassayampa River			A&Ww			F
MG	Bonsall Park Lake	59th Avenue & Bethany Home Road, Phoenix at 33°31'24"/112°11'08"	Urban		A&Ww			
MG	Canal Park Lake	College Avenue & Curry Road, Tempe at 33°26'54"/ 111°56'19"	Urban		A&Ww			

MG	Cave Creek	Headwaters to the Cave Creek Dam			A&Ww			F
MG	Cave Creek	Cave Creek Dam to the Arizona Canal				A&We		
MG	Centennial Wash	Headwaters to confluence with the Gila River at 33°16'32"/112°48'08"				A&We		
MG	Centennial Wash Ponds	33°5452"/113°23'47"			A&Ww			F
MG	Chaparral Park Lake	Hayden Road & Chaparral Road, Scottsdale at 33°30'40"/111°54'27"	Urban		A&Ww			
MG	Cortez Park Lake	35th Avenue & Dunlap, Glendale at 33°34'13"/ 112°07'52"	Urban		A&Ww			
MG	Desert Breeze Lake	Galaxy Drive, West Chandler at 33°18'47"/ 111°55'10"	Urban		A&Ww			
MG	Devils Canyon	Headwaters to confluence with Mineral Creek			A&Ww			
MG	Dobson Lake	Dobson Road & Los Lagos Vista Avenue, Mesa at 33°22'48"/111°52'35"	Urban		A&Ww			
MG	East Maricopa Flood-way	From Brown and Greenfield Rds to the Gila River Indian Reservation Boundary			A&We			
MG	Eldorado Park Lake	Miller Road & Oak Street, Tempe at 33°28'25"/ 111°54'53"	Urban		A&Ww			
MG	Encanto Park Lake	15th Avenue & Encanto Blvd., Phoenix at 33°28'28"/ 112°05'18"	Urban		A&Ww			
MG	Fain Lake	Town of Prescott Valley Park Lake 34°34'29"/ 112°21'06"	Urban		A&Ww			
MG	French Gulch	Headwaters to			A&Ww			

		confluence with Hassayampa River						
MG	Galena Gulch	Headwaters to confluence with the Agua Fria River				A&We		
MG	Galloway Wash (EDW)	Town of Cave Creek WWTP outfall at 33°50'15"/ 111°57'35" to confluence with Cave Creek					A&Wedw	
MG	Gila River	San Carlos Indian Reservation boundary to the Ashurst-Hayden Dam			A&Ww			F
MG	Gila River	Ashurst-Hayden Dam to the Town of Florence WWTP outfall at 33°02'20"/111°24'19"				A&We		
MG	Gila River (EDW)	Town of Florence WWTP outfall to Felix Road					A&Wedw	
MG	Gila River	Felix Road to the Gila River Indian Reservation boundary				A&We		
MG	Gila River (EDW)	From the confluence with the Salt River to Gillespie Dam					A&Wedw	
MG	Gila River	Gillespie Dam to confluence with Painted Rock Dam			A&Ww			F
MG	Granada Park Lake	6505 North 20th Street, Phoenix at 33°31'56"/ 112°02'16"	Urban		A&Ww			
MG	Groom Creek	Headwaters to confluence with the Hassayampa River		A&Wc				F
MG	Hassayampa Lake	34°25'45"/112°25'33"	Igneous	A&Wc				F
MG	Hassayampa River	Headwaters to confluence with Copper Creek		A&Wc				F

MG	Hassayampa River	Below confluence with Copper Creek to the confluence with Blind Indian Creek.			A&Ww			F
MG	Hassayampa River	Below confluence with Blind Indian Creek to the Buckeye Irrigation Company Canal				A&We		
MG	Hassayampa River	Below Buckeye Irrigation Company canal to the Gila River			A&Ww			F
MG	Horsethief Lake	34°09'42"/112°17'57"	Igneous	A&Wc				F
MG	Indian Bend Wash	Headwaters to confluence with the Salt River				A&We		
MG	Indian Bend Wash Lakes	Scottsdale at 33°30'32"/111°54'24"	Urban		A&Ww			
MG	Indian School Park Lake	Indian School Road & Hayden Road, Scottsdale at 33°29'39"/111°54'37"	Urban		A&Ww			
MG	Kiwanis Park Lake	6000 South Mill Avenue, Tempe at 33°22'27"/ 111°56'22"	Urban		A&Ww			
MG	Lake Pleasant	33°53'46"/112°16'29"	Deep		A&Ww			F
MG	Lake Pleasant, Lower	33°50'32"/112°16'03"			A&Ww			F
MG	Lion Canyon	Headwaters to confluence with Weaver Creek			A&Ww			F
MG	Little Ash Creek	Headwaters to confluence with Ash Creek at			A&Ww			F
MG	Lynx Creek	Headwaters to confluence with unnamed tributary at 34°34'29"/ 112°21'07"		A&Wc				F
MG	Lynx Creek	Below confluence with			A&Ww			F

		unnamed tributary at 34°34'29"/112°21'07" to confluence with Agua Fria River						
MG	Lynx Lake	34°31'07"/112°23'07"	Deep	A&Wc				F
MG	Maricopa Park Lake	33°35'28"/112°18'15"	Urban		A&Ww			
MG	Martinez Canyon	Headwaters to confluence with Box Canyon			A&Ww			F
MG	Martinez Wash	Headwaters to confluence with the Hassayampa River			A&Ww			F
MG	McKellips Park Lake	Miller Road & McKellips Road, Scottsdale at 33°27'14"/111°54'49"	Urban		A&Ww			
MG	McMicken Wash (EDW)	City of Peoria Jomax WWTP outfall at 33°43'31"/ 112°20'15" to confluence with Agua Fria River					A&Wedw	
MG	Mineral Creek	Headwaters to 33°12'34"/110°59'58"			A&Ww			F
MG	Mineral Creek (diversion tunnel and lined channel)	33°1224"/110°59'58" to 33°07'56"/110°58'34'						P
MG	Mineral Creek	End of diversion channel to confluence with Gila River			A&Ww			F
MG	Minnehaha Creek	Headwaters to confluence with the Hassayampa River			A&Ww			F
MG	New River	Headwaters to Interstate 17 at 33°54'19.5"/112°08'46"			A&Ww			F
MG	New River	Below Interstate 17 to confluence with Agua				A&We		

		Fria River						
MG	Painted Rock Reservoir	33°04'23"/113°00'38"	Sedimentary		A&Ww			F
MG	Papago Park Ponds	Galvin Parkway, Phoenix at 33°27'15"/111°56'45"	Urban		A&Ww			
MG	Papago Park South Pond	Curry Road, Tempe 33°26'22"/111°55'55"	Urban		A&Ww			
MG	Perry Mesa Tank	34°11'03"/112°02'01"			A&Ww			F
MG	Phoenix Area Canals	Granite Reef Dam to all municipal WTP intakes						
MG	Phoenix Area Canals	Below municipal WTP intakes and all other locations						
MG	Picacho Reservoir	32°51'10"/111°28'25"	Shallow		A&Ww			F
MG	Poland Creek	Headwaters to confluence with Lorena Gulch		A&Wc				F
MG	Poland Creek	Below confluence with Lorena Gulch to confluence with Black Canyon Creek			A&Ww			F
MG	Queen Creek	Headwaters to the Town of Superior WWTP outfall at 33°16'33"/ 111°07'44"			A&Ww			
MG	Queen Creek (EDW)	Below Town of Superior WWTP outfall to confluence with Potts Canyon					A&Wedw	
MG	Queen Creek	Below Potts Canyon to ' Whitlow Dam			A&Ww			F
MG	Queen Creek	Below Whitlow Dam to confluence with Gila River				A&We		
MG	Riverview Park Lake	Dobson Road & 8th Street, Mesa at 33°25'50"/ 111°52'29"	Urban		A&Ww			
MG	Roadrunner	36th Street & Cactus,	Urban		A&Ww			

	Park Lake	Phoenix at 33°35'56"/ 112°00'21"						
MG	Salt River	Verde River to 2 km below Granite Reef Dam			A&Ww			F
MG	Salt River	2 km below Granite Reef Dam to City of Mesa NW WRF outfall at 33°26'22"/111°53'14"				A&We		
MG	Salt River (EDW)	City of Mesa NW WRF outfall to Tempe Town Lake					A&Wedw	
MG	Salt River	Below Tempe Town Lake to Interstate 10 bridge				A&We		
MG	Salt River	Below Interstate 10 bridge to the City of Phoenix 23rd Avenue WWTP outfall at 33°24'44"/ 112°07'59"			A&Ww			
MG	Salt River (EDW)	From City of Phoenix 23rd Avenue WWTP outfall to confluence with Gila River					A&Wedw	
MG	Siphon Draw (EDW)	Superstition Mountains CFD WWTP outfall at 33°21'40"/111°33'30" to 6 km downstream					A&Wedw	
MG	Sycamore Creek	Headwaters to confluence with Tank Canyon		A&Wc				F
MG	Sycamore Creek	Below confluence with Tank Canyon to confluence with Agua Fria River			A&Ww			F
MG	Tempe Town Lake	At Mill Avenue Bridge at 33°26'00"/111°56'26"	Urban		A&Ww			F
MG	The Lake Tank	32°54'14"/111°04'15"			A&Ww			F
MG	Tule Creek	Headwaters to			A&Ww			F

		confluence with the Agua Fria River						
MG	Turkey Creek	Headwaters to confluence with unnamed tributary at 34°19'28"/ 112°21'33"		A&Wc				F
MG	Turkey Creek	Below confluence with unnamed tributary to confluence with Poland Creek			A&Ww			F
MG	Unnamed Wash (EDW)	Gila Bend WWTP outfall to confluence with th e Gila River					A&Wedw	
MG	Unnamed Wash (EDW)	Luke Air Force Base WWTP outfall at 33°32'21"/ 112°19'15" to confluence with the Agua Fria River					A&Wedw	
MG	Unnamed Wash (EDW)	North Florence WWTP outfall at 33°03'50"/ 111°23'13" to confluence with Gila River					A&Wedw	
MG	Unnamed Wash (EDW)	Town of Prescott Valley WWTP outfall at 34°35'16"/ 112°16'18" to confluence with the Agua Fria River					A&Wedw	
MG	Unnamed Wash (EDW)	Town of Cave Creek WRF outfall at 33°48'02"/ 111°59'22" to confluence with Cave Creek					A&Wedw	
MG	Wagner Wash (EDW)	City of Buckeye Festival Ranch WRF outfall at 33°39'14"/112°40'18" to 2 km downstream					A&Wedw	
MG	Walnut Canyon Creek	Headwaters to confluence with the Gila River			A&Ww			F
MG	Weaver Creek	Headwaters to confluence with			A&Ww			F

		Antelope Creek, tributary to Martinez Wash						
MG	White Canyon Creek	Headwaters to confluence with Walnut Canyon Creek			A&Ww			F
MG	Yavapai Lake (EDW)	Town of Prescott Valley WWTP outfall 002 at 34°36'07"/112°18'48" to Navajo Wash	EDW				A&Wedw	
SC	Agua Caliente Lake	12325 East Roger Road, Tucson 32°16'51"/ 110°43'52"	Urban		A&Ww			
SC	Agua Caliente Wash	Headwaters to confluence with Soldier Trail			A&Ww			F
SC	Agua Caliente Wash	Below Soldier Trail to confluence with Tanque Verde Creek				A&We		
SC	Aguirre Wash	From the Tohono O'odham Indian Reservation boundary to 32°28'38"/ 111°46'51"				A&We		
SC	Alambre Wash	Headwaters to confluence with Brawley Wash				A&We		
SC	Alamo Wash	Headwaters to confluence with Rillito Creek				A&We		
SC	Altar Wash	Headwaters to confluence with Brawley Wash				A&We		
SC	Alum Gulch	Headwaters to 31°28'20"/110°43'51"				A&We		
SC	Alum Gulch	From 31°28'20"/110°43'51" to 31°29'17"/110°44'25"			A&Ww			F
SC	Alum Gulch	Below 31°29'17"/110°44'25" to confluence with				A&We		

		Sonoita Creek						
SC	Arivaca Creek	Headwaters to confluence with Altar Wash			A&Ww			F
SC	Arivaca Lake	31°31'52"/111°15'06"	Igneous		A&Ww			F
SC	Atterbury Wash	Headwaters to confluence with Pantano Wash				A&We		
SC	Bear Grass Tank	31°33'01"/111°11'03"			A&Ww			F
SC	Big Wash	Headwaters to confluence with Cañada del Oro				A&We		
SC	Black Wash (EDW)	Pima County WWMD Avra Valley WWTP outfall at 32°09'58"/ 111°11'17" to confluence with Brawley Wash					A&Wedw	
SC	Bog Hole Tank	31°28'36"/110°37'09"			A&Ww			F
SC	Brawley Wash	Headwaters to confluence with Los Robles Wash				A&We		
SC	California Gulch	Headwaters To U.S./Mexico border			A&Ww			F
SC	Cañada del Oro	Headwaters to State Route 77			A&Ww			F
SC	Cañada del Oro	Below State Route 77 to confluence with the Santa Cruz River				A&We		
SC	Cienega Creek	Headwaters to confluence with Gardner Canyon			A&Ww			F
SC	Cienega Creek (OAW)	From confluence with Gardner Canyon to USGS gaging station (#09484600)			A&Ww			F
SC	Davidson Canyon	Headwaters to unnamed spring at 31°59'00"/ 110°38'49"				A&We		
SC	Davidson	From unnamed Spring			A&Ww			F

	Canyon (OAW)	to confluence with unnamed tributary at 31°59'09"/110°38'44"						
SC	Davidson Canyon (OAW)	Below confluence with unnamed tributary to unnamed spring at 32°00'40"/110°38'36"				A&We		
SC	Davidson Canyon (OAW)	From unnamed spring to confluence with Cienega Creek			A&Ww			F
SC	Empire Gulch	Headwaters to unnamed spring at 31°47'18"/ 110°38'17"				A&We		
SC	Empire Gulch	From 31°47'18"/110°38'17" to 31°47'03"/110°37'35"			A&Ww			F
SC	Empire Gulch	From 31°47'03"/110°37'35" to 31°47'05"/ 110°36'58"				A&We		
SC	Empire Gulch	From 31°47'05"/110°36'58" to confluence with Cienega Creek			A&Ww			F
SC	Flux Canyon	Headwaters to confluence with Alum Gulch				A&We		
SC	Gardner Canyon Creek	Headwaters to confluence with Sawmill Canyon		A&Wc				F
SC	Gardner Canyon Creek	Below Sawmill Canyon to confluence with Cienega Creek			A&Ww			F
SC	Greene Wash	Santa Cruz River to the Tohono O'odham Indian Reservation boundary				A&We		
SC	Greene Wash	Tohono O'odham Indian Reservation boundary to confluence with Santa Rosa Wash				A& We		

		at 32°53'52"/ 111°56'48"						
SC	Harshaw Creek	Headwaters to confluence with Sonoita Creek at				A&We		
SC	Hit Tank	32°43'57"/111°03'18"			A&Ww			F
SC	Holden Canyon Creek	Headwaters to U.S./Mexico border			A&Ww			F
SC	Huachuca Tank	31°21'11"/110°30'18"			A&Ww			F
SC	Julian Wash	Headwaters to confluence with the Santa Cruz River				A&We		
SC	Kennedy Lake	Mission Road & Ajo Road, Tucson at 32°10'49"/ 111°00'27"	Urban		A&Ww			
SC	Lakeside Lake	8300 East Stella Road, Tucson at 32°11'11"/ 110°49'00"	Urban		A&Ww			
SC	Lemmon Canyon Creek	Headwaters to confluence with unnamed tributary at 32°23'48"/ 110°47'49"		A&Wc				F
SC	Lemmon Canyon Creek	Below unnamed tributary at 32°23'48"/110°47'49" to confluence with Sabino Canyon Creek			A&Ww			F
SC	Los Robles Wash	Headwaters to confluence with the Santa Cruz River				A&We		
SC	Madera Canyon Creek	Headwaters to confluence with unnamed tributary at 31°43'42"/ 110°52'51"		A&Wc				F
SC	Madera Canyon Creek	Below unnamed tributary at 31°43'42"/110°52'51 to confluence with the Santa Cruz River			A&Ww			F

SC	Mattie Canyon	Headwaters to confluence with Cienega Creek			A&Ww			F
SC	Nogales Wash	Headwaters to confluence with Potrero Creek			A&Ww			
SC	Oak Tree Canyon	Headwaters to confluence with Cienega Creek				A&We		
SC	Palisade Canyon	Headwaters to confluence with unnamed tributary at 32°22'33"/110°45'31"		A&Wc				F
SC	Palisade Canyon	Below 32°22'33"/110°45'31" to unnamed tributary of Sabino Canyon			A&Ww			F
SC	Pantano Wash	Headwaters to confluence with Tanque Verde Creek				A&We		
SC	Parker Canyon Creek	Headwaters to confluence with unnamed tributary at 31°24'17"/ 110°28'47"	A&Wc					F
SC	Parker Canyon Creek	Below unnamed tributary to U.S./Mexico border			A&Ww			F
SC	Parker Canyon Lake	31°25'35"/110°27'15"	Deep	A&Wc				F
SC	Patagonia Lake	31°29'56"/110°50'49"	Deep		A&Ww			F
SC	Peña Blanca Lake	31°24'15"/111°05'12"	Igneous		A&Ww			F
SC	Potrero Creek	Headwaters to Interstate 19				A&We		
SC	Potrero Creek	Below Interstate 19 to confluence with Santa Cruz River			A&Ww			F
SC	Puertocito Wash	Headwaters to confluence with Altar Wash				A&We		

SC	Quitobaquito Spring	(Pond and Springs) 31°56'39"/113°01'06"			A&Ww			F
SC	Redrock Canyon Creek	Headwaters to confluence with Harshaw Creek			A&Ww			F
SC	Rillito Creek	Headwaters to confluence with the Santa Cruz River				A&We		
SC	Romero Canyon Creek	Headwaters to confluence with unnamed tributary at 32°24'29"/ 110°50'39"		A&Wc				F
SC	Romero Canyon Creek	Below unnamed tributary to confluence with Sutherland Wash			A&Ww			F
SC	Rose Canyon Creek	Headwaters to confluence with Sycamore Canyon		A&Wc				F
SC	Rose Canyon Lake	32°23'13"/110°4238"	Igneous	A&Wc				F
SC	Ruby Lakes	31°26'29"/111°14'22"	Igneous		A&Ww			F
SC	Sabino Canyon	Headwaters to 32°23'20"/110°47'06"		A&Wc				F
SC	Sabino Canyon	Below 32°23'20"/110°47'06" to confluence with Tanque Verde River			A&Ww			F
SC	Salero Ranch Tank	31°35'43"/110°53'25"			A&Ww			F
SC	Santa Cruz River	Headwaters to the at U.S./Mexico border			A&Ww			F
SC	Santa Cruz River	U.S./Mexico border to the Nogales International WWTP outfall at 31°27'25"/110°58'04"			A&Ww			F
SC	Santa Cruz River (EDW)	Nogales International WWTP outfall to the Tubac Bridge Josephine Canyon					A&Wedw	
SC	Santa Cruz	Josephine Canyon to				A&We		

	River	Agua Nueva WRF outfall at 32°17'04"/111°01'45"						
SC	Santa Cruz River (EDW)	Agua Nueva WRF outfall to Baumgartner Road					A&Wedw	
SC	Santa Cruz River, West Branch	Headwaters to the confluence with Santa Cruz River				A&We		
SC	Santa Cruz River	Baumgartner Road to the Ak Chin Indian Reservation boundary				A&We		
SC	Santa Cruz Wash, North Branch	Headwaters to City of Casa Grande WRF outfall at 32°54'57"/111°47'13"				A&We		
SC	Santa Cruz Wash, North Branch (EDW)	City of Casa Grande WRF outfall to 1 km downstream					A&Wedw	
SC	Santa Rosa Wash	Below Tohono O'odham Indian Reservation to the Ak Chin Indian Reservation				A&We		
SC	Santa Rosa Wash (EDW)	Palo Verde Utilities CO-WRF outfall at 33°04'20"/ 112°01'47" to the Chin Indian Reservation					A&Wedw	
SC	Soldier Tank	32°25'34"/110°44'43"		A&Wc				F
SC	Sonoita Creek	Headwaters to the Town of Patagonia WWTP outfall at 31°32'25"/ 110°45'31"				A&We		
SC	Sonoita Creek (EDW)	Town of Patagonia WWTP outfall to permanent groundwater upwelling point approximately 1600 feet downstream of outfall					A&Wedw	

SC	Sonoita Creek	Below 1600 feet downstream of Town of Patagonia WWTP outfall groundwater upwelling point to confluence with the Santa Cruz River			A&Ww			F
SC	Split Tank	31°28'11"/111°05'12"			A&Ww			F
SC	Sutherland Wash	Headwaters to confluence with Cañada del Oro			A&Ww			F
SC	Sycamore Canyon	Headwaters to 32°21'60" / 110°44'48"		A&Wc				F
SC	Sycamore Canyon	From 32°21'60" / 110°44'48" to Sycamore Reservoir			A&Ww			F
SC	Sycamore Canyon	Headwaters to the U.S./Mexico border			A&Ww			F
SC	Sycamore Reservoir	32°20'57'/110°47'38"		A&Wc				F
SC	Tanque Verde Creek	Headwaters to Houghton Road			A&Ww			F
SC	Tanque Verde Creek	Below Houghton Road to confluence with Rillito Creek				A&We		
SC	Three R Canyon	Headwaters to Unnamed Trib to Three R Canyon at 31°28'26"/ 110°46'04"				A&We		
SC	Three R Canyon	From 31°28'26"/110°46'04" to 31°28'28"/110°47'15" (Cox Gulch)			A&Ww			F
SC	Three R Canyon	From (Cox Gulch) 31°28'28"/110°47'15" to confluence with Sonoita Creek				A&We		
SC	Tinaja Wash	Headwaters to confluence with the Santa Cruz River				A&We		
SC	Unnamed	Oracle Sanitary District					A&Wedw	

	Wash (EDW)	WWTP outfall at 32°36'54"/ 110°48'02" to 5 km downstream						
SC	Unnamed Wash (EDW)	Arizona City Sanitary District WWTP outfall at 32°45'43"/111°44'24" to confluence with Santa Cruz Wash					A&Wedw	
SC	Unnamed Wash (EDW)	Saddlebrook WWTP outfall at 32°32'00"/110°53'01" to confluence with Cañada del Oro					A&Wedw	
SC	Vekol Wash	Headwater to Santa Cruz Wash: Those reaches not located on the Ak-Chin, Tohono O'odham and Gila River Indian Reservations				A&We		
SC	Wakefield Canyon	Headwaters to confluence with unnamed tributary at 31°52'48"/ 110°26'27"		A&Wc				F
SC	Wakefield Canyon	Below confluence with unnamed tributary to confluence with Cienega Creek			A&Ww			F
SC	Wild Burro Canyon	Headwaters to confluence with unnamed tributary at 32°27'43"/ 111°05'47"			A&Ww			F
SC	Wild Burro Canyon	Below confluence with unnamed tributary to confluence with Santa Cruz River				A&We		
SP	Abbot Canyon	Headwaters to confluence with Whitewater Draw			A&Ww			F
SP	Aravaipa Creek	Headwaters to confluence with Stowe			A&Ww			F

		Gulch						
SP	Aravaipa Creek (OAW)	Stowe Gulch to downstream boundary of Aravaipa Canyon Wilderness Area			A&Ww			F
SP	Aravaipa Creek	Below downstream boundary of Aravaipa Canyon Wilderness Area to confluence with the San Pedro River			A&Ww			F
SP	Ash Creek	Headwaters to 31°50'28"/109°40'04"			A&Ww			F
SP	Babocomari River	Headwaters to confluence with the San Pedro River			A&Ww			F
SP	Bass Canyon Creek	Headwaters to confluence with unnamed tributary at 32°26'06"/ 110°13'22"		A&Wc				F
SP	Bass Canyon Creek	Below confluence with unnamed tributary to confluence with Hot Springs Canyon Creek			A&Ww			F
SP	Bass Canyon Tank	32°24'00"/110°13'00"			A&Ww			F
SP	Bear Creek	Headwaters to U.S./Mexico border			A&Ww			F
SP	Big Creek	Headwaters to confluence with Pitchfork Canyon		A&Wc				F
SP	Blacktail Pond	Fort Huachuca Military Reservation at 31°31'04"/ 110°24'47", headwater lake in Blacktail Canyon			A&Ww			F
SP	Black Draw	Headwaters to the U.S./Mexico border			A&Ww			F
SP	Booger Canyon	Headwaters to confluence with Aravaipa Creek			A&Ww			F
SP	Buck Canyon	Headwaters to			A&Ww			F

		confluence with Buck Creek Tank						
SP	Buck Canyon	Below Buck Creek Tank to confluence with Dry Creek				A&We		
SP	Buehman Canyon Creek (OAW)	Headwaters to confluence with unnamed tributary at 32°24'54"/ 110°32'10"			A&Ww			F
SP	Buehman Canyon Creek	Below confluence with unnamed tributary to confluence with San Pedro River			A&Ww			F
SP	Bull Tank	32°31'13"/110°12'52"			A&Ww			F
SP	Bullock Canyon	Headwaters to confluence with Buehman Canyon			A&Ww			F
SP	Carr Canyon Creek	Headwaters to confluence with unnamed tributary at 31°27'01"/ 110°15'48"		A&Wc				F
SP	Carr Canyon Creek	Below confluence with unnamed tributary to confluence with the San Pedro River			A&Ww			F
SP	Copper Creek	Headwaters to confluence with Prospect Canyon			A&Ww			F
SP	Copper Creek	Below confluence with Prospect Canyon to confluence with the San Pedro River				A&We		
SP	Deer Creek	Headwaters to confluence with unnamed tributary at 32°59'57"/ 110°20'11"		A&Wc				F
SP	Deer Creek	Below confluence with unnamed tributary to confluence with Aravaipa Creek			A&Ww			F
SP	Dixie Canyon	Headwaters to			A&Ww			F

		confluence with Mexican Canyon						
SP	Double R Canyon Creek	Headwaters to confluence with Bass Canyon			A&Ww			F
SP	Dry Canyon	Headwaters to confluence with Whitewater draw			A&Ww			F
SP	East Gravel Pit Pond	Fort Huachuca Military Reservation at 31°30'54"/ 110°19'44"	Sedimentary		A&Ww			F
SP	Espiritu Canyon Creek	Headwaters to confluence with Soza Wash			A&Ww			F
SP	Fly Pond	Fort Huachuca Military Reservation at 31°32'53"/ 110°21'16"			A&Ww			F
SP	Fourmile Creek	Headwaters to confluence with Aravaipa Creek			A&Ww			F
SP	Fourmile Canyon, Left Prong	Headwaters to confluence with unnamed tributary at 32°43'15"/ 110°23'46"		A&Wc				F
SP	Fourmile Canyon, Left Prong	Below confluence with unnamed tributary to confluence with Fourmile Canyon Creek			A&Ww			F
SP	Fourmile Canyon, Right Prong	Headwaters to confluence with Fourmile Canyon			A&Ww			F
SP	Gadwell Canyon	Headwaters to confluence with Whitewater Draw			A&Ww			F
SP	Garden Canyon Creek	Headwaters to confluence with unnamed tributary at 31°29'01"/ 110°19'44"		A&Wc				F
SP	Garden Canyon Creek	Below confluence with unnamed tributary to confluence with the			A&Ww			F

		San Pedro River						
SP	Glance Creek	Headwaters to confluence with Whitewater Draw			A&Ww			F
SP	Gold Gulch	Headwaters to U.S./Mexico border			A&Ww			F
SP	Goudy Canyon Wash	Headwaters to confluence with Grant Creek		A&Wc				F
SP	Grant Creek	Headwaters to confluence with unnamed tributary at 32°38'10"/ 109°56'37"		A&Wc				F
SP	Grant Creek	Below confluence with unnamed tributary to terminus near Willcox Playa			A&Ww			F
SP	Gravel Pit Pond	Fort Huachuca Military Reservation at 31°30'52"/ 110°19'49"	Sedimentary		A&Ww			F
SP	Greenbush Draw	From U.S./Mexico border to confluence with San Pedro River				A&We		
SP	Hidden Pond	Fort Huachuca Military Reservation at 32°30'30"/ 109°22'17"			A&Ww			F
SP	High Creek	Headwaters to confluence with unnamed tributary at 32°33'08"/ 110°14'42"		A&Wc				F
SP	High Creek	Below confluence with unnamed tributary to terminus near Willcox Playa			A&Ww			F
SP	Horse Camp Canyon	Headwaters to confluence with Aravaipa Creek			A&Ww			F
SP	Hot Springs Canyon Creek	Headwaters to confluence with the San Pedro River			A&Ww			F
SP	Johnson	Headwaters to			A&Ww			F

	Canyon	Whitewater Draw at 31°32'46"/ 109°43'32"						
SP	Lake Cochise (EDW)	South of Twin Lakes Municipal Golf Course at 32°13'50"/109°49'27"	EDW				A&Wedw	
SP	Leslie Canyon Creek	Headwaters to confluence with Whitewater Draw			A&Ww			F
SP	Lower Garden Canyon Pond	Fort Huachuca Military Reservation at 31°29'39"/ 110°18'34"			A&Ww			F
SP	Mexican Canyon	Headwaters to confluence with Dixie Canyon			A&Ww			F
SP	Miller Canyon	Headwaters to Broken Arrow Ranch Road at 31°25'35"/110°15'04"		A&Wc				F
SP	Miller Canyon	Below Broken Arrow Ranch Road to confluence with the San Pedro River			A&Ww			F
SP	Moonshine Creek	Headwaters to confluence with Post Creek		A&Wc				F
SP	Mountain View Golf Course Pond	Fort Huachuca Military Reservation at 31°32'14"/ 110°18'52"	Sedimentary		A&Ww			
SP	Mule Gulch	Headwaters to the Lavender Pit at 31°26'11"/ 109°54'02"			A&Ww			
SP	Mule Gulch	The Lavender Pit to the' Highway 80 bridge at 31°26'30"/109°49'28"				A&We		
SP	Mule Gulch	Below the Highway 80 bridge to confluence with Whitewater Draw				A&We		
SP	Oak Grove Canyon	Headwaters to confluence with Turkey Creek			A&Ww			F

SP	Officers Club Pond	Fort Huachuca Military Reservation at 31°32'51"/ 110°21'37"	Sedimentary		A&Ww			
SP	Paige Canyon Creek	Headwaters to confluence with the San Pedro River			A&Ww			F
SP	Parsons Canyon Creek	Headwaters to confluence with Aravaipa Creek			A&Ww			F
SP	Pinery Creek	Headwaters to State Highway 181		A&Wc				F
SP	Pinery Creek	Below State Highway 181 to terminus near Willcox Playa			A&Ww			F
SP	Post Creek	Headwaters to confluence with Grant Creek		A&Wc				F
SP	Ramsey Canyon Creek	Headwaters to Forest Service Road #110 at 31°27'44"/110°17'30"		A&Wc				F
SP	Ramsey Canyon Creek	Below Forest Service Road #110 to confluence with Carr Wash			A&Ww			F
SP	Rattlesnake Creek	Headwaters to confluence with Brush Canyon		A&Wc				F
SP	Rattlesnake Creek	Below confluence with Brush Canyon to confluence with Aravaipa Creek			A&Ww			F
SP	Redfield Canyon	Headwaters to confluence with unnamed tributary at 32°33'40"/ 110°18'42"		A&Wc				F
SP	Redfield Canyon	Below confluence with unnamed tributary to confluence with the San Pedro River			A&Ww			F
SP	Riggs Lake	32°42'28"/109°57'53"	Igneous	A&Wc				F
SP	Rock Creek	Headwaters to						F

		confluence with Turkey Creek Alc						
SP	Rucker Canyon	Headwaters to confluence with Whitewater Draw		A&Wc				F
SP	Rucker Canyon Lake	31°46'46"/109°18'30"	Shallow	A&Wc				F
SP	San Pedro River	U.S./ Mexico Border to Buehman Canyon			A&Ww			F
SP	San Pedro River	From Buehman canyon to confluence with the Gila River			A&Ww			F
SP	Snow Flat Lake	32°39'10"/109°51'54"	Igneous	A&Wc				F
SP	Soldier Creek	Headwaters to confluence with Post Creek at 32°40'50"/109°54'41"		A&Wc				F
SP	Soto Canyon	Headwaters to confluence with Dixie Canyon			A&Ww			F
SP	Swamp Springs Canyon	Headwaters to confluence with Redfield Canyon			A&Ww			F
SP	Sycamore Pond I	Fort Huachuca Military Reservation at 31°35'12"/ 110°26'11"	Sedimentary		A&Ww			F
SP	Sycamore Pond II	Fort Huachuca Military Reservation at 31°34'39"/ 110°26'10"	Sedimentary		A&Ww			F
SP	Turkey Creek	Headwaters to confluence with Aravaipa Creek			A&Ww			F
SP	Turkey Creek	Headwaters to confluence with Rock Creek		A&Wc				F
SP	Turkey Creek	Below confluence with Rock Creek to terminus near Willcox Playa			A&Ww			F
SP	Unnamed Wash (EDW)	Mt. Lemmon WWTP outfall at					A&Wedw	

		32°26'51"/110°45'08" to 0.25 km downstream						
SP	Virgus Canyon Creek	Headwaters to confluence with Aravaipa Creek			A&Ww			F
SP	Walnut Gulch	Headwaters to Tombstone WWTP outfall at 31°43'47"/110°04'06"				A&We		
SP	Walnut Gulch (EDW)	Tombstone WWTP outfall to the confluence with Tombstone Wash					A&Wedw	
SP	Walnut Gulch	Tombstone Wash to confluence with San Pedro River				A&We		
SP	Ward Canyon	Headwaters to confluence with Turkey Creek		A&Wc				F
SP	Whitewater Draw	Headwaters to confluence with unnamed tributary at 31°20'36"/ 109°43'48"				A&We		
SP	Whitewater Draw	Below confluence with unnamed tributary to U.S./ Mexico border			A&Ww			F
SP	Willcox Playa	From 32°08'19"/109°50'59" in the Sulphur Springs Valley	Sedimentary		A&Ww			F
SP	Woodcutters Pond	Fort Huachuca Military Reservation at 31°30'09"/ 110°20'12"	Igneous		A&Ww			F
SR	Ackre Lake	33°37'01"/109°20'40"		A&Wc				F
SR	Apache Lake	33°37'23"/111°12'26"	Deep		A&Ww			F
SR	Barnhard Creek	Headwaters to confluence with unnamed tributary at 34°05'37/ 111°26'40"		A&Wc				F
SR	Barnhardt	Below confluence with			A&Ww			F

	Creek	unnamed tributary to confluence with Rye Creek						
SR	Basin Lake	33°55'00"/109°26'09"	Igneous		A&Ww			F
SR	Bear Creek	Headwaters to confluence with the Black River		A&Wc				F
SR	Bear Wallow Creek (OAW)	Headwaters to confluence with the Black River		A&Wc				F
SR	Bear Wallow Creek, North Fork (OAW)	Headwaters to confluence with Bear Wallow Creek		A&Wc				F
SR	Bear Wallow Creek, South Fork (OAW)	Headwaters to confluence with Bear Wallow Creek		A&Wc				F
SR	Beaver Creek	Headwaters to confluence with Black River		A&Wc				F
SR	Big Lake	33°5236"/109°25'33"	Igneous	A&Wc				F
SR	Black River	Headwaters to confluence with Salt River		A&Wc				F
SR	Black River, East Fork	From 33°51'19"/109°18'54" to confluence with the Black River		A&Wc				F
SR	Black River, North Fork of East Fork	Headwaters to confluence with Boneyard Creek		A&Wc				F
SR	Black River, West Fork	Headwaters to confluence with the Black River		A&Wc				F
SR	Bloody Tanks Wash	Headwaters to Schultze Ranch Road				A&We		
SR	Bloody Tanks Wash	Schultze Ranch Road to confluence with Miami Wash				A&We		
SR	Boggy Creek	Headwaters to confluence with Centerfire Creek		A&Wc				F

SR	Boneyard Creek	Headwaters to confluence with Black River, East Fork		A&Wc				F
SR	Boulder Creek	Headwaters to confluence with LaBarge Creek			A&Ww			F
SR	Campaign Creek	Headwaters to Roosevelt Lake			A&Ww			F
SR	Canyon Creek	Headwaters to the White Mountain Apache Reservation boundary		A&Wc				F
SR	Canyon Lake	33°32'44"/111°26'19"	Deep		A&Ww			F
SR	Centerfire Creek	Headwaters to confluence with the Black River		A&Wc				F
SR	Chambers Draw Creek	Headwaters to confluence with the North Fork of the East Fork of Black River		A&Wc				F
SR	Cherry Creek	Headwaters to confluence with unnamed tributary at 34°05'09"/ 110°56'07"		A&Wc				F
SR	Cherry Creek	Below unnamed tributary to confluence with the Salt River			A&Ww			F
SR	Christopher Creek	Headwaters to confluence with Tonto Creek		A&Wc				F
SR	Cold Spring Canyon Creek	Headwaters to confluence with unnamed tributary at 33°49'50"/ 110°52'58"		A&Wc				F
SR	Cold Spring Canyon Creek	Below confluence with unnamed tributary to confluence with Cherry Creek			A&Ww			F
SR	Conklin Creek	Headwaters to confluence with the Black River		A&Wc				F

SR	Coon Creek	Headwaters to confluence with unnamed tributary at 33°46'41"/ 110°54'26"		A&Wc				F
SR	Coon Creek	Below confluence with unnamed tributary to confluence with Salt River			A&Ww			F
SR	Corduroy Creek	Headwaters to confluence with Fish Creek		A&Wc				F
SR	Coyote Creek	Headwaters to confluence with the Black River, East Fork		A&Wc				F
SR	Crescent Lake	33°54'38"/109°25'18"	Shallow	A&Wc				F
SR	Deer Creek	Headwaters to confluence with the Black River, East Fork		A&Wc				F
SR	Del Shay Creek	Headwaters to confluence with Gun Creek			A&Ww			F
SR	Devils Chasm Creek	Headwaters to confluence with unnamed tributary at 33°48'46" / 110°52'35"		A&Wc				F
SR	Devils Chasm Creek	Below confluence with unnamed tributary to confluence with Cherry Creek			A&Ww			F
SR	Dipping Va t Reservoir	33°55'47"/109°25'31"	Igneous		A&Ww			F
SR	Double Cienega Creek	Headwaters to confluence with Fish Creek		A&Wc				F
SR	Fish Creek	Headwaters to confluence with the Black River		A&Wc				F
SR	Fish Creek	Headwaters to confluence with the Salt River			A&Ww			F

SR	Gold Creek	Headwaters to confluence with unnamed tributary at 33°59'47"/ 111°25'10"		A&Wc				F
SR	Gold Creek	Below confluence with unnamed tributary to confluence with Tonto Creek			A&Ww			F
SR	Gordon Canyon Creek	Headwaters to confluence with Hog Canyon		A&Wc				F
SR	Gordon Canyon Creek	Below confluence with Hog Canyon to confluence with Haigler Creek			A&Ww			F
SR	Greenback Creek	Headwaters to confluence with Tonto Creek			A&Ww			F
SR	Haigler Creek	Headwaters to confluence with unnamed tributary at 34°12'23"/ 111°00'15"		A&Wc				F
SR	Haigler Creek	Below confluence with unnamed tributary to confluence with Tonto Creek			A&Ww			F
SR	Hannagan Creek	Headwaters to confluence with Beaver Creek		A&Wc				F
SR	Hay Creek (OAW)	Headwaters to confluence with the Black River, West Fork		A&Wc				F
SR	Home Creek	Headwaters to confluence with the Black River, West Fork		A&Wc				F
SR	Horse Creek	Headwaters to confluence with the Black River, West Fork		A&Wc				F
SR	Horse Camp Creek	Headwaters to confluence with unnamed tributary at		A&Wc				F

		33°54'00"/ 110°50'07"						
SR	Horse Camp Creek	Below confluence with unnamed tributary to confluence with Cherry Creek			A&Ww			F
SR	Horton Creek	Headwaters to confluence with Tonto Creek		A&Wc				F
SR	Houston Creek	Headwaters to confluence with Tonto Creek			A&Ww			F
SR	Hunter Creek	Headwaters to confluence with Christopher Creek		A&Wc				F
SR	LaBarge Creek	Headwaters to Canyon Lake			A&Ww			F
SR	Lake Sierra Blanca	33°52'25"/109°16'05"		A&Wc				F
SR	Miami Wash	Headwaters to confluence with Pinal Creek				A&We		
SR	Mule Creek	Headwaters to confluence with Canyon Creek		A&Wc				F
SR	Open Draw Creek	Headwaters to confluence with the East Fork of Black River		A&Wc				F
SR	P B Creek	Headwaters to Forest Service Road #203 at 33°57'08"/110°56'12"		A&Wc				F
SR	P B Creek	Below Forest Service Road #203 to Cherry Creek			A&Ww			F
SR	Pinal Creek	Headwaters to confluence with unnamed EDW wash (Globe WWTP) at 33°25'29"/110°48'20"				A&We		
SR	Pinal Creek (EDW)	Confluence with unnamed EDW wash					A&Wedw	

		(Globe WWTP) to 33°26'55"/ 110°49' 25"						
SR	Pinal Creek	From 33°26'55"/110°49'25" to Lower Pinal Creek water treatment plant outfall #001 at 33°31'04"/ 110°51'55"				A&We		
SR	Pinal Creek	From Lower Pinal Creek WTP outfall # to See Ranch Crossing at 33°32'25"/110°52'28"					A&Wedw	
SR	Pinal Creek	From See Ranch Crossing to confluence with unnamed tributary at 33°35'28"/110°54'31"			A&Ww			F
SR	Pinal Creek	From unnamed tributary to confluence with Salt River			A&Ww			F
SR	Pine Creek	Headwaters to confluence with the Salt River			A&Ww			F
SR	Pinto Creek	Headwaters to confluence with unnamed tributary at 33°19'27"/ 110°54'58"		A&Wc				F
SR	Pinto Creek	Below confluence with unnamed tributary to Roosevelt Lake			A&Ww			F
SR	Pole Corral Lake	33°30'38"/110°00'15"	Igneous		A&Ww			F
SR	Pueblo Canyon Creek	Headwaters to confluence with unnamed tributary at 33°50'23"/ 110°51'37"		A&Wc				F
SR	Pueblo Canyon Creek	Below confluence with unnamed tributary to confluence with Cherry Creek			A&Ww			F
SR	Reevis Creek	Headwaters to			A&Ww			F

		confluence with Pine Creek						
SR	Reservation Creek	Headwaters to confluence with the Black River		A&Wc				F
SR	Reynolds Creek	Headwaters to confluence with Workman Creek		A&Wc				F
SR	Roosevelt Lake	33°52'17"/111°00'17"	Deep		A&Ww			F
SR	Russell Gulch	From Headwaters to confluence with Miami Wash				A&We		
SR	Rye Creek	Headwaters to confluence with Tonto Creek			A&Ww			F
SR	Saguaro Lake	33°33'44"/111°30'55"	Deep		A&Ww			F
SR	Salome Creek	Headwaters to confluence with the Salt River			A&Ww			F
SR	Salt House Lake	33°57'04"/109°20'11"	Igneous		A&Ww			F
SR	Salt River	White Mountain Apache Reservation Boundary at 33°48'52"/110°31'33" to Roosevelt Lake			A&Ww			F
SR	Salt River	Theodore Roosevelt Dam to 2 km below Granite Reef Dam			A&Ww			F
SR	Slate Creek	Headwaters to confluence with Tonto Creek			A&Ww			F
SR	Snake Creek (OAW)	Headwaters to confluence with the Black River		A&Wc				F
SR	Spring Creek	Headwaters to confluence with Tonto Creek			A&Ww			F
SR	Stinky Creek (OAW)	Headwaters to confluence with the		A&Wc				F

		Black River, West Fork						
SR	Thomas Creek	Headwaters to confluence with Beaver Creek		A&Wc				F
SR	Thompson Creek	Headwaters to confluence with the West Fork of the Black River		A&Wc				F
SR	Tonto Creek	Headwaters to confluence with unnamed tributary at 34°18'11"/ 111°04'18"		A&Wc				F
SR	Tonto Creek	Below confluence with unnamed tributary to Roosevelt Lake			A&Ww			F
SR	Turkey Creek	Headwaters to confluence with Rock Creek		A&Wc				F
SR	Wildcat Creek	Headwaters to confluence with Centerfire Creek		A&Wc				F
SR	Willow Creek	Headwaters to confluence with Beaver Creek		A&Wc				F
SR	Workman Creek	Headwaters to confluence with Reynolds Creek		A&Wc				F
SR	Workman Creek	Below confluence with Reynolds Creek to confluence with Salome Creek			A&Ww			F
UG	Apache Creek	Headwaters to confluence with the Gila River			A&Ww			F
UG	Ash Creek	Headwaters to confluence with unnamed tributary at 32°46'15"/ 109°51'45"		A&Wc				F
UG	Ash Creek	Below confluence with unnamed tributary to confluence with the			A&Ww			F

		Gila River						
UG	Bennett Wash	Headwaters to the Gila River				A&We		
UG	Bitter Creek	Headwaters to confluence with the Gila River			A&Ww			F
UG	Blue River	Headwaters to confluence with Strayhorse Creek at 33°29'02"/ 109°12'14"		A&Wc				F
UG	Blue River	Below confluence with Strayhorse Creek to confluence with San Francisco River			A&Ww			F
UG	Bonita Creek (OAW)	San Carlos Indian Reservation boundary to confluence with the Gila River			A&Ww			F
UG	Buckelew Creek	Headwaters to confluence with Castle Creek		A&Wc				F
UG	Campbell Blue Creek	Headwaters to confluence with the Blue River		A&Wc				F
UG	Castle Creek	Headwaters to confluence with Campbell Blue Creek		A&Wc				F
UG	Cave Creek (OAW)	Headwaters to confluence with South Fork Cave Creek		A&Wc				F
UG	Cave Creek (OAW)	Below confluence with South Fork Cave Creek to Coronado National Forest boundary			A&Ww			F
UG	Cave Creek	Below Coronado National Forest boundary to New Mexico border			A&Ww			F
UG	Cave Creek, South Fork	Headwaters to confluence with Cave Creek		A&Wc				F

UG	Chase Creek	Headwaters to the Phelps-Dodge Morenci Mine			A&Ww			F
UG	Chase Creek	Below the Phelps-Dodge Morenci Mine to confluence with San Francisco River				A&We		
UG	Chitty Canyon Creek	Headwaters to confluence with Salt House Creek		A&Wc				F
UG	Cima Creek	Headwaters to confluence with Cave Creek		A&Wc				F
UG	Cluff Reservoir #1	32°48'55"/109°50'46"	Sedimentary		A&Ww			F
UG	Cluff Reservoir #3	32°48'21"/109°51'46"	Sedimentary		A&Ww			F
UG	Coleman Creek	Headwaters to confluence with Campbell Blue Creek		A&Wc				F
UG	Dankworth Lake	32°43'13"/109°42'17"	Sedimentary	A&Wc				F
UG	Deadman Canyon Creek	Headwaters to confluence with unnamed tributary at 32°43'50"/ 109°49'03"		A&Wc				F
UG	Deadman Canyon Creek	Below confluence with unnamed tributary to confluence with Graveyard Wash			A&Ww			F
UG	Eagle Creek	Headwaters to confluence with unnamed tributary at 33°22'32"/ 109°29'43"		A&Wc				F
UG	Eagle Creek	Below confluence with unnamed tributary to confluence with the Gila River			A&Ww			F
UG	East Eagle Creek	Headwaters to confluence with Eagle Creek		A&Wc				F

UG	East Turkey Creek	Headwaters to confluence with unnamed tributary at 31°58'22"/ 109°12'20"		A&Wc				F
UG	East Turkey Creek	Below confluence with unnamed tributary to terminus near San Simon River			A&Ww			F
UG	East Whitetail	Headwaters to terminus near San Simon River			A&Ww			F
UG	Emigrant Canyon	Headwaters to terminus near San Simon River			A&Ww			F
UG	Evans Pond #1	32°49'19"/109°51'12"	Sedimentary		A&Ww			F
UG	Evans Pond #2	32°49'14"/109°51'09"	Sedimentary		A&Ww			F
UG	Fishhook Creek	Headwaters to confluence with the Blue River		A&Wc				F
UG	Foote Creek	Headwaters to confluence with the Blue River		A&Wc				F
UG	Frye Canyon Creek	Headwaters to Frye Mesa Reservoir		A&Wc				F
UG	Frye Canyon Creek	Frye Mesa reservoir to terminus at Highline Canal.			A&Ww			F
UG	Frye Mesa Reservoir	32°45'14"/109°50'02"	Igneous	A&Wc				F
UG	Gibson Creek	Headwaters to confluence with Marijilda Creek		A&Wc				F
UG	Gila River	New Mexico border to the San Carlos Indian Reservation boundary			A&Ww			F
UG	Grant Creek	Headwaters to confluence with the Blue River		A&Wc				F
UG	Judd Lake	33°51'15"/109°0935"	Sedimentary	A&Wc				F

UG	K P Creek (OAW)	Headwaters to confluence with the Blue River		A&Wc				F
UG	Lanphier Canyon Creek	Headwaters to confluence with the Blue River		A&Wc				F
UG	Little Blue Creek	Headwaters to confluence with Dutch Blue Creek		A&Wc				F
UG	Little Blue Creek	Below confluence with Dutch Blue Creek to confluence with Blue Creek			A&Ww			F
UG	Little Creek	Headwaters to confluence with the San Francisco River		A&Wc				F
UG	George's Tank	33°51'24"/109°08'30"	Sedimentary	A&Wc				F
UG	Luna Lake	33°4950"/109°05'06"	Sedimentary	A&Wc				F
UG	Marijilda Creek	Headwaters to confluence with Gibson Creek		A&Wc				F
UG	Marijilda Creek	Below confluence with Gibson Creek to confluence with Stockton Wash			A&Ww			F
UG	Markham Creek	Headwaters to confluence with the Gila River			A&Ww			F
UG	Pigeon Creek	Headwaters to confluence with the Blue River			A&Ww			F
UG	Raspberry Creek	Headwaters to confluence with the Blue River		A&Wc				F
UG	Roper Lake	32°45'23"/109°4214"	Sedimentary		A&Ww			F
UG	San Francisco River	Headwaters to the New Mexico border		A&Wc				F
UG	San Francisco	New Mexico border to confluence with the			A&Ww			F

	River	Gila River						
UG	San Simon River	Headwaters to confluence with the Gila River				A&We		
UG	Sheep Tank	32°46'14"/109°48'09"	Sedimentary		A&Ww			F
UG	Smith Pond	32°49'15"/109°50'36"	Sedimentary		A&Ww			F
UG	Squaw Creek	Headwaters to confluence with Thomas Creek		A&Wc				F
UG	Stone Creek	Headwaters to confluence with the San Francisco River		A&Wc				F
UG	Strayhorse Creek	Headwaters to confluence with the Blue River		A&Wc				F
UG	Thomas Creek	Headwaters to confluence with Rousensock Creek		A&Wc				F
UG	Thomas Creek	Below confluence with Rousensock Creek to confluence with Blue River			A&Ww			F
UG	Tinny Pond	33°47'49"/109°04'27"	Sedimentary		A&Ww			F
UG	Turkey Creek	Headwaters to confluence with Campbell Blue Creek		A&Wc				F
VR	American Gulch	Headwaters to the Northern Gila County Sanitary District WWTP outfall at 34°14'02"/111°22'14"			A&Ww			F
VR	American Gulch (EDW)	Below Northern Gila County Sanitary District WWTP outfall to confluence with the East Verde River					A&Wedw	
VR	Apache Creek	Headwaters to confluence with Walnut Creek			A&Ww			F
VR	Ashbrook Wash	Headwaters to the Fort McDowell Indian				A&We		

		Reservation boundary						
VR	Aspen Creek	Headwaters to confluence with Granite Creek			A&Ww			F
VR	Bar Cross Tank	35°00'41"/112°05'39"			A&Ww			F
VR	Barrata Tank	35°02'43"/112°24'21"			A&Ww			F
VR	Bartlett Lake	33°49'52"/111°37'44"	Deep		A&Ww			F
VR	Beaver Creek	Headwaters to confluence with the Verde River			A&Ww			F
VR	Big Chino Wash	Headwaters to confluence with Sullivan Lake				A&We		
VR	Bitter Creek	Headwaters to the Jerome WWTP outfall at 34°45'12"/112°06'24"				A&We		
VR	Bitter Creek (EDW)	Jerome WWTP outfall to the Yavapai Apache Indian Reservation boundary					A&Wedw	
VR	Bitter Creek	Below the Yavapai Apache Indian Reservation boundary to confluence with the Verde River			A&Ww			F
VR	Black Canyon Creek	Headwaters to confluence with unnamed tributary at 34°39'20"/ 112°05'06"		A&Wc				F
VR	Black Canyon Creek	Below confluence with unnamed tributary to confluence with the Verde River			A&Ww			F
VR	Bonita Creek	Headwaters to confluence with Ellison Creek		A&Wc				F
VR	Bray Creek	Headwaters to confluence with Webber Creek		A&Wc				F

VR	Camp Creek	Headwaters to confluence with the Sycamore Creek			A&Ww			F
VR	Cereus Wash	Headwaters to the Fort McDowell Indian Reservation boundary				A&We		
VR	Chase Creek	Headwaters to confluence with the East Verde River		A&Wc				F
VR	Clover Creek	Headwaters to confluence with Headwaters of West Clear Creek		A&Wc				F
VR	Coffee Creek	Headwaters to confluence with Spring Creek			A&Ww			F
VR	Colony Wash	Headwaters to the Fort McDowell Indian Reservation boundary				A&We		
VR	Dead Horse Lake	34°45'08"/112°00'42"	Shallow		A&Ww			F
VR	Deadman Creek	Headwaters to Horseshoe Reservoir			A&Ww			F
VR	Del Monte Gulch	Headwaters to confluence with City of Cottonwood WWTP outfall 002 at 34°43'57"/112°02'46"				A&We		
VR	Del Monte Gulch (EDW)	City of Cottonwood WWTP outfall 002 at 34°43'57"/ 112°02'46" to confluence with Blowout Creek					A&Wedw	
VR	Del Rio Dam Lake	34°48'55"/112°28'03"	Sedimentary		A&Ww			F
VR	Dry Beaver Creek	Headwaters to confluence with Beaver Creek			A&Ww			F
VR	Dry Creek (EDW)	Sedona Ventures WWTP outfall at 34°50'02"/ 111°52'17"					A&Wedw	

		to 34°48'12"/ 111°52'48"						
VR	Dude Creek	Headwaters to confluence with the East Verde River		A&Wc				F
VR	East Verde River	Headwaters to confluence with Ellison Creek		A&Wc				F
VR	East Verde River	Below confluence with Ellison Creek to confluence with the Verde River			A&Ww			F
VR	Ellison Creek	Headwaters to confluence with the East Verde River		A&Wc				F
VR	Fossil Creek (OAW)	Headwaters to confluence with the Verde River			A&Ww			F
VR	Fossil Springs (OAW)	34°25'24"/111°3427"			A&Ww			F
VR	Foxboro Lake	34°53'42"/111°39'55"			A&Ww			F
VR	Fry Lake	35°03'45"/111°48'04"			A&Ww			F
VR	Gap Creek	Headwaters to confluence with Government Spring		A&Wc				F
VR	Gap Creek	Below Government Spring to confluence with the Verde River			A&Ww			F
VR	Garrett Tank	35°1857"/112°4220"			A&Ww			F
VR	Goldwater Lake, Lower	34°29'56"/112°27'17"	Sedimentary	A&Wc				F
VR	Goldwater Lake, Upper	34°2952"/112°26'59"	Igneous	A&Wc				F
VR	Granite Basin Lake	34°37'01"/112°32'58"	Igneous	A&Wc				F
VR	Granite Creek	Headwaters to Watson Lake		A&Wc				F
VR	Granite	Below Watson Lake to			A&Ww			F

	Creek	confluence with the Verde River						
VR	Green Valley Lake (EDW)	34°13'54"/111°20'45"	Urban				A&Wedw	
VR	Heifer Tank	35°20'27"/112°32'59"			A&Ww			F
VR	Hells Canyon Tank	35°0459"/112°24'07"	Igneous		A&Ww			F
VR	Homestead Tank	35°21'24"/112°41'36"	Igneous		A&Ww			F
VR	Horse Park Tank	34°58'15"/111°36'32"			A&Ww			F
VR	Horseshoe Reservoir	34°00'25"/111°43'36"	Sedimentary		A&Ww			F
VR	Houston Creek	Headwaters to confluence with the Verde River			A&Ww			F
VR	Huffer Tank	34°27'46"/111°23'11"			A&Ww			F
VR	J.D. Dam Lake	35°0402"/112°01'48"	Shallow	A&Wc				F
VR	Jacks Canyon	Headwaters to Big Park WWTP outfall at 34°45'46"/ 111°45'51"				A&We		
VR	Jacks Canyon (EDW)	Below Big Park WWTP outfall to confluence with Dry Beaver Creek					A&Wedw	
VR	Lime Creek	Headwaters to Horseshoe Reservoir			A&Ww			F
VR	Masonry Number 2 Reservoir	35°13'32"/112°24'10"		A&Wc				F
VR	McLellan Reservoir	35°13'09"/112°17'06"	Igneous		A&Ww			F
VR	Meath Dam Tank	35°07'52"/112°27'35"			A&Ww			F
VR	Mullican Place Tank	34°44'16"/111°36'10"	Igneous		A&Ww			F
VR	Oak Creek (OAW)	Headwaters to confluence with unnamed tributary at 34°59'15"/ 111°44'47"		A&Wc				F

VR	Oak Creek (OAW)	Below confluence with unnamed tributary to confluence with Verde River			A&Ww			F
VR	Oak Creek, West Fork (OAW)	Headwaters to confluence with Oak Creek		A&Wc				F
VR	Odell Lake	34°56'5"/111°37'53"	Igneous	A&Wc				F
VR	Peck's Lake	34°46'51"/112°02'01"	Shallow		A&Ww			F
VR	Perkins Tank	35°06'42"/112°04'12"	Shallow	A&Wc				F
VR	Pine Creek	Headwaters to confluence with unnamed tributary at 34°21'51"/ 111°26'49"		A&Wc				F
VR	Pine Creek	Below confluence with unnamed tributary to confluence with East Verde River			A&Ww			F
VR	Red Creek	Headwaters to confluence with the Verde River			A&Ww			F
VR	Reservoir #1	35°13'5"/111°50'09"	Igneous		A&Ww			F
VR	Reservoir #2	35°13'17"/111°50'39"	Igneous		A&Ww			F
VR	Roundtree Canyon Creek	Headwaters to confluence with Tangle Creek			A&Ww			F
VR	Scholze Lake	35°11'53"/112°00'37"	Igneous	A&Wc				F
VR	Spring Creek	Headwaters to confluence with unnamed tributary at 34°57'23"/ 111°57'21"		A&Wc				F
VR	Spring Creek	Below confluence with unnamed tributary to confluence with Oak Creek			A&Ww			F
VR	Steel Dam Lake	35°13'36"/112°24'54"	Igneous	A&Wc				F
VR	Stehr Lake	34°22'01"/111°40'02"	Sedimentary		A&Ww			F
VR	Stoneman Lake	34°46'47"/111°31'14"	Shallow	A&Wc				F

VR	Sullivan Lake	34°51'42"/112°27'51"			A&Ww			F
VR	Sycamore Creek	Headwaters to confluence with unnamed tributary at 35°03'41"/ 111°57'31"		A&Wc				F
VR	Sycamore Creek	Below confluence with unnamed tributary to confluence with Verde River			A&Ww			F
VR	Sycamore Creek	Headwaters to confluence with Verde River at 33°37'55"/111°39'58"			A&Ww			F
VR	Sycamore Creek	Headwaters to confluence with Verde River at 34°04'42"/111°42'14"			A&Ww			F
VR	Tangle Creek	Headwaters to confluence with Verde River			A&Ww			F
VR	Trinity Tank	35°27'44"/112°48'01"			A&Ww			F
VR	Unnamed Wash	Flagstaff Meadows WWTP outfall at '35°13'59"/ 111°48'35" to Volunteer Wash					A&Wedw	
VR	Verde River	From headwaters at confluence of Chino Wash and Granite Creek to Bartlett Lake Dam			A&Ww			F
VR	Verde River	Below Bartlett Lake Dam to Salt River			A&Ww			F
VR	Walnut Creek	Headwaters to confluence with Big Chino Wash			A&Ww			F
VR	Watson Lake	34°3458"/112°25'26"	Igneous		A&Ww			F
VR	Webber Creek	Headwaters to confluence with the East Verde River		A&Wc				F
VR	West Clear Creek	Headwaters to confluence with		A&Wc				F

		Meadow Canyon						
VR	West Clear Creek	Below confluence with Meadow Canyon to confluence with the Verde River			A&Ww			F
VR	We t Beaver Creek	Headwaters to unnamed springs at 34°41'17"/ 111°34'34"		A&Wc				F
VR	We t Beaver Creek	Below unnamed springs to confluence with Dry Beaver Creek			A&Ww			F
VR	Whitehorse Lake	35°06'59"/112°00'48"	Igneous	A&Wc				F
VR	Williamson Valley Wash	Headwaters to confluence with Mint Wash				A&We		
VR	Williamson Valley Wash	From confluence of Mint Wash to 10.5 km downstream			A&Ww			F
VR	Williamson Valley Wash	From 10.5 km downstream of Mint Wash confluence to confluence with Big Chino Wash				A&We		
VR	Williscraft Tank	35°11'22"/112°35'40"			A&Ww			F
VR	Willow Creek	Above Willow Creek Reservoir		A&Wc				F
VR	Willow Creek	Below Willow Creek Reservoir to confluence with Granite Creek			A&Ww			F
VR	Willow Creek Reservoir	34°36'17"/112°26'19"	Shallow		A&Ww			F
VR	Willow Valley Lake	34°41'08"/111°20'02"	Sedimentary		A&Ww			F

(Adopted effective February 18, 1992 (Supp. 92-1). Appendix B repealed, new Appendix B adopted effective April 24, 1996 (Supp. 96-2). Amended by final rulemaking at 8 A.A.R. 1264, effective March 8, 2002 (Supp. 02-1). Amended by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective

8/2/2016. Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

APPENDIX C. Site-Specific Standards

Watershed	Surface Water	Surface Water Description & Location	Parameter	Site-Specific Criterion
LC	Rio de Flag (EDW)	Flagstaff WWTP outfall to the confluence with San Francisco Wash	Copper (D)	33 µg/L(A&Wedw)
CL	Yuma East Wetlands	From inlet culvert from Colorado River into restored channel to Ocean Bridge	Selenium (T)	2.2 µg/L(A&Ww acute)
			Total residual chlorine	33 µg/L(A&Ww acute)
				20 µg/L(A&Ww chronic)
SR	Pinto Creek	From confluence of Ellis Ranch tributary at 33°19'26.7"/110°54'57.5" to the confluence of West Fork of Pinto Creek at 33°27'32.3"/111°00'19.7"	Copper (D)	34 µg/L(A&Ww acute for hardness values below 268 mg/L)
				34 µg/L (A&Ww chronic)

(Adopted effective February 18, 1992 (Supp. 92-1). Appendix C repealed effective April 24, 1996 (Supp. 96-2). New Appendix C made by final rulemaking at 14 A.A.R. 4708, effective January 31, 2009 (Supp. 08-4). Amended by final rulemaking at 22 A.A.R. 2328, effective 8/2/2016. Amended by final rulemaking at 25 A.A.R. 2515, effective 9/10/2019.)

§ R18-11-201. Repealed

(Amended effective January 29, 1980 (Supp. 80-1). Amended subsection A. effective April 17, 1984 (Supp. 84-2). Former Section R9-21-201 repealed, former Section R9-21-203 renumbered as Section R9-21-201 and amended effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Former Section R9-21-201 renumbered without change as Section R18-11-201 (Supp. 87-3). Amended effective December 1, 1988 (Supp. 88-4). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-202. Repealed

(Former Section R9-21-202 repealed, former Section R9-21-102 renumbered as Section R9-21-202 and amended effective January 7, 1985 (Supp. 85-1). Amended subsections (B), (D), and (E) effective August 12, 1986 (Supp. 86-4). Former Section R9-21-202 renumbered without change as Section R18-11-202 (Supp. 87-3). Section repealed, new Section adopted effective February 18, 1992 (Supp. 92-1). Section repealed effective April 24, 1996 (Supp. 96-2).)

§ R18-11-203. Repealed

(Amended effective January 29, 1980 (Supp. 80-1). Amended subsection (B) by adding paragraphs (27) and (28) effective October 14, 1981 (Supp. 81-5). Former Section R9-21-203 renumbered as Section R9-21-201, former Section R9-21-204 renumbered as Section R9-21-203 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-203 renumbered and amended as Section R9-21-204, new Section R9-21-203 adopted effective August 12, 1986 (Supp. 86-4). Former Section R9-21-203 renumbered without change as Section R18-11-203 (Supp. 87-3). Amended subsection (B) effective December 1, 1988 (Supp. 88-4). Section repealed, new Section adopted effective February 18, 1992 (Supp. 92-1). Section repealed effective April 24, 1996 (Supp. 96-2).)

§ R18-11-204. Repealed

(Former Section R9-21-204 renumbered and amended as Section R9-21-207, former Section R9-21-206 renumbered and amended as Section R9-21-204 effective January 29, 1980 (Supp. 80-1). Former Section R9-21-204 renumbered as Section R9-21-203, former Section R9-21-205 renumbered as Section R9-21-204 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-204 renumbered and amended as Section R9-21-205, former Section R9-21-203 renumbered and amended as Section R9-21-204 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-204 renumbered without change as Section R18-11-204 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-205. Repealed

(Former Section R9-21-205 repealed, new Section R9-21-205 adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-205 renumbered as Section R9-21-204, former Section R9-21-206 renumbered as Section R9-21-205 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-205 renumbered and amended as Section R9-21-206, former Section R9-21-204 renumbered and amended as Section R9-21-205 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-205 renumbered without change as Section R18-11-205 (Supp. 87-3). Section repealed, new Section adopted effective February 18, 1992 (Supp. 92-1). Section repealed April 24, 1996 (Supp. 96-2).)

§ R18-11-206. Repealed

(Former Section R9-21-206 renumbered and amended as Section R9-21-204, new Section R9-21-206 adopted effective January 29, 1980 (Supp. 80-1). Amended by adding subsection (B) effective October 14, 1981 (Supp. 81-5). Amended subsection (B) and Table 1 effective January 29, 1982 (Supp. 82-1). Amended subsection (B) and Table 1 effective August 13, 1982 (Supp. 82-4). Former Section R9-21-206 renumbered as Section R9-21-205, former Section R9-21-207 renumbered as Section R9-21-206 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-206 renumbered and amended as Section R9-21-207, former Section R9-21-205 renumbered and amended as R9-21-206 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-206 renumbered without change as Section R18-11-206 (Supp. 87-3).)

§ R18-11-207. Repealed

(Former Section R9-21-207 repealed, former Section R9-21-204 renumbered and amended as Section R9-21-207 effective January 29, 1980 (Supp. 80-1). Former Section R9-21-207 renumbered as Section R9-21-206, former Section R9-21-208 renumbered as Section R9-21-207 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-207 renumbered without change as Section R9-21-208, former Section R9-21-206 renumbered and amended as Section R9-21-207 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-207 renumbered without change as Section R18-11-207 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-208. Repealed

(Former Section R9-21-208 repealed, new Section R9-21-208 adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-208 renumbered as Section R9-21-207, Appendices 1 through 9 amended as Appendix A (now shown following R9-21-213), former Section R9-21-209 renumbered as R9-21-208 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-208 renumbered and amended as Section R9-21-209, former Section R9-21-207 renumbered without change as Section R9-21-208 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-208 renumbered without change as Section R18-11-208 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-209. Repealed

(Former Section R9-21-209 renumbered and amended as Section R9-21-210, new Section R9-21-209 adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-209 renumbered as Section R9-21-208, Tables I and II amended as Appendix B (now shown following R9-21-213 and Appendix A), former Section R9-21-210 renumbered as Section R9-21-209 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-209 renumbered and amended as Section R9-21-210, former Section R9-21-208 renumbered and amended as Section R9-21-209 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-209 renumbered without change as Section R18-11-209 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-210. Repealed

(Former Section R9-21-210 renumbered and amended as Section R9-21-211, former Section R9-21-209 renumbered and amended as Section R9-21-210 effective January 29, 1980 (Supp. 80-1). Amended subsection (A) effective April 17, 1984 (Supp. 84-2). Former Section R9-21-210 renumbered as Section R9-21-209, former Section R9-21-211 renumbered as Section R9-21-210 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-210 renumbered and amended as Section R9-21-211, former Section R9-21-209 renumbered and amended as Section R9-21-210 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-210 renumbered without change as Section R18-11-210 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-211. Repealed

(Former Section R9-21-210 renumbered and amended as Section R9-21-211 effective January 29, 1980 (Supp. 80-1). Amended subsections (D), (G) three (I), and added (J) effective October 14, 1981 (Supp. 81-5). Former Section R9-21-211 renumbered as Section R9-21-210, former Section R9-21-212 renumbered as Section R9-21-211 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-211 renumbered and amended as Section R9-21-212, former Section R9-21-210 renumbered and amended as Section R9-21-211 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-211 renumbered without change as Section R18-11-211 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-212. Repealed

(Adopted effective January 29, 1980 (Supp. 80-1). Former Section R9-21-212 renumbered as Section R9-21-211, former Section R9-21-213 renumbered as Section R9-21-212 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-212 repealed, former Section R9-21-211 renumbered and amended as Section R9-21-212 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-212 renumbered without change as Section R18-11-212 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-213. Repealed

(Adopted effective January 29, 1980 (Supp. 80-1). Amended effective April 17, 1984 (Supp. 84-2). Former Section R9-21-213 renumbered as Section R9-21-212, former Section R9-21-103 renumbered as Section R9-21-213 and amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-213 renumbered without change as Section R9-21-214, new Section R9-21-213 adopted effective August 12, 1986 (Supp. 86-4). Former Section R9-21-213 renumbered without change as Section R18-11-213 (Supp. 87-3). Amended effective December 1, 1988 (Supp. 88-4). Section repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-214. Repealed

(Former Section R9-21-213 renumbered without change as Section R9-21-214 effective August 12, 1986 (Supp. 86-4). Former Section R9-21-214 renumbered without change as Section R18-11-214 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1).)

APPENDIX A. Repealed

(Former Section R9-21-208, Appendices 1 through 9 renumbered and amended as new Appendix A adopted effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Appendix repealed effective February 18, 1992 (Supp. 92-1).)

APPENDIX B. Repealed

(Former R9-21-209, Table 1 and Table 2 renumbered and amended as Appendix B adopted effective January 7, 1985 (Supp.85-1). Amended effective August 12, 1986 (Supp. 86-4). Appendix repealed effective February 18, 1992 (Supp. 92-1).)

§ R18-11-301. Definitions

The terms in this Article have the following meanings:

"Direct reuse" has the meaning prescribed in R18-9-701(1).

"Disinfection" means a treatment process that uses oxidants, ultraviolet light, or other agents to kill or inactivate pathogenic organisms in wastewater.

"Filtration" means a treatment process that removes particulate matter from wastewater by passage through porous media.

"Gray water" means wastewater, collected separately from a sewage flow, that originates from a clothes washer, bathtub, shower, or sink, but it does not include wastewater from a kitchen sink, dishwasher, or a toilet.

"Industrial wastewater" means wastewater generated from an industrial process.

"Landscape impoundment" means a manmade lake, pond, or impoundment of reclaimed water where swimming, wading, boating, fishing, and other water-based recreational activities are prohibited. A landscape impoundment is created for storage, landscaping, or for aesthetic purposes only.

"NTU" means nepholometric turbidity unit.

"On-site wastewater treatment facility" has the meaning prescribed in A.R.S. § 49-201(24).

"Open access" means that access to reclaimed water by the general public is uncontrolled.

"Reclaimed water" has the meaning prescribed in A.R.S. § 49-201(31).

"Recreational impoundment" means a manmade lake, pond, or impoundment of reclaimed water where boating or fishing is an intended use of the impoundment. Swimming and other full-body recreation activities (for example, water-skiing) are prohibited in a recreational impoundment.

"Restricted access" means that access to reclaimed water by the general public is controlled.

"Secondary treatment" means a biological treatment process that achieves the minimum level of effluent quality defined by the federal secondary treatment regulation at 40 CFR § 133.102.

"Sewage" means untreated wastes from toilets, baths, sinks, lavatories, laundries, and other plumbing fixtures in places of human habitation, employment, or recreation.

(Adopted effective July 9, 1981 (Supp. 81-4). Former Section R9-21-301 renumbered without change as Section R18-11-301 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-302. Applicability

This Article applies to the direct reuse of reclaimed water, except for:

1. The direct reuse of gray water, or

2. The direct reuse of reclaimed water from an onsite wastewater treatment facility regulated by a general Aquifer Protection Permit under 18 A.A.C. 9, Article 3.

(Adopted effective June 8, 1981 (Supp. 81-3). Amended effective January 7, 1985 (Supp. 85-1). Former Section R9-21-302 renumbered without change as Section R18-11-302 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-303. Class A+ Reclaimed Water

A. Class A+ reclaimed water is wastewater that has undergone secondary treatment, filtration, nitrogen removal treatment, and disinfection. Chemical feed facilities to add coagulants or polymers are required to ensure that filtered effluent before disinfection complies with the 24-hour average turbidity criterion prescribed in subsection (B)(1). Chemical feed facilities may remain idle if the 24-hour average turbidity criterion in (B)(1) is achieved without chemical addition.

B. An owner of a facility shall ensure that:

1. The turbidity of Class A+ reclaimed water at a point in the wastewater treatment process after filtration and immediately before disinfection complies with the following:

a. The 24-hour average turbidity of filtered effluent is two NTUs or less, and

b. The turbidity of filtered effluent does not exceed five NTUs at any time.

2. Class A+ reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:

a. There are no detectable fecal coliform organisms in four of the last seven daily reclaimed water samples taken, and

b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 23 / 100 ml.

c. If alternative treatment processes or alternative turbidity criteria are used, or reclaimed water is blended with other water to produce Class A+ reclaimed water under subsection (C), there are no detectable enteric virus in four of the last seven monthly reclaimed water samples taken.

3. The 5-sample geometric mean concentration of total nitrogen in a reclaimed water sample is less than 10 mg / L.

C. An owner of a facility may use alternative treatment methods other than those required by subsection (A), or comply with alternative turbidity criteria other than those required by subsection (B)(1), or blend reclaimed water with other water to produce Class A+ reclaimed water provided the owner demonstrates through pilot plant testing, existing water quality data, or other means that the alternative treatment methods, alternative turbidity criteria, or blending reliably produces a reclaimed water that meets the disinfection criteria in subsection (B)(2) and the total nitrogen criteria in subsection (B)(3) before discharge to a reclaimed water distribution system.

D. Class A+ reclaimed water is not required for any type of direct reuse. A person may use Class A+ reclaimed water for any type of direct reuse listed in Table A.

(Adopted effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Former Section R9-21-303 renumbered without change as Section R18-11-303 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-304. Class a Reclaimed Water

A. Class A reclaimed water is wastewater that has undergone secondary treatment, filtration, and disinfection. Chemical feed facilities to add coagulants or polymers are required to ensure that filtered effluent before disinfection complies with the 24-hour average turbidity criterion prescribed in subsection (B)(1). Chemical feed facilities may remain idle if the 24-hour average turbidity criterion in subsection (B)(1) is achieved without chemical addition.

B. An owner of a facility shall ensure that:

1. The turbidity of Class A reclaimed water at a point in the wastewater treatment process after filtration and immediately before disinfection complies with the following:

a. The 24-hour average turbidity of filtered effluent is two NTUs or less, and

b. The turbidity of filtered effluent does not exceed five NTUs at any time.

2. Class A reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:

a. There are no detectable fecal coliform organisms in four of the last seven daily reclaimed water samples taken, and

b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 23 / 100 ml.

c. If alternative treatment processes or alternative turbidity criteria are used, or reclaimed water is blended with other water to produce Class A reclaimed water under subsection (C), there are no detectable enteric virus in four of the last seven monthly reclaimed water samples taken.

C. An owner of a facility may use alternative treatment methods other than those required by subsection (A), or comply with alternative turbidity criteria other than those required by subsection (B)(1), or blend reclaimed water with other water to produce Class A reclaimed water provided the owner demonstrates through pilot plant testing, existing water quality data, or other means that the alternative treatment methods, alternative turbidity criteria, or blending reliably produces a reclaimed water that meets the disinfection criteria in subsection (B)(2) before discharge to a reclaimed water distribution system.

D. A person shall use Class A reclaimed water for a type of direct reuse listed as Class A in Table A. A person may use Class A reclaimed water for a type of direct reuse listed as Class B or Class C in Table A.

(Adopted effective January 7, 1985 (Supp. 85-1). Amended effective August 12, 1986 (Supp. 86-4). Former Section R9-21-304 renumbered without change as Section R18-11-304 (Supp. 87-3). Section repealed effective February 18, 1992 (Supp. 92-1). New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-305. Class B+ Reclaimed Water

A. Class B+ reclaimed water is wastewater that has undergone secondary treatment, nitrogen removal treatment, and disinfection.

B. An owner of a facility shall ensure that:

1. Class B+ reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:

a. The concentration of fecal coliform organisms in four of the last seven daily reclaimed water samples is less than 200 / 100 ml.

b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 800 / 100 ml.

2. The 5-sample geometric mean concentration of total nitrogen in a reclaimed water sample is less than 10 mg / L.

C. Class B+ reclaimed water is not required for a type of direct reuse. A person may use Class B+ reclaimed water for a type of direct reuse listed as Class B or Class C in Table A. A person shall not use Class B+ reclaimed water for a type of direct reuse listed as Class A in Table A.

(New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-306. Class B Reclaimed Water

A. Class B reclaimed water is wastewater that has undergone secondary treatment and disinfection.

B. An owner of a facility shall ensure that Class B reclaimed water meets the following criteria after disinfection treatment and before discharge to a reclaimed water distribution system:

1. The concentration of fecal coliform organisms in four of the last seven daily reclaimed water samples is less than 200 / 100 ml.

2. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 800 / 100 ml.

C. A person shall use a minimum of Class B reclaimed water for a type of direct reuse listed as Class B in Table A. A person may use Class B reclaimed water for a type of direct reuse listed as Class C in Table A. A person shall not use Class B reclaimed water for a type of direct reuse listed as Class A in Table A.

(New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-307. Class C Reclaimed Water

A. Class C reclaimed water is wastewater that has undergone secondary treatment in a series of wastewater stabilization ponds, including aeration, with or without disinfection.

B. The owner of a facility shall ensure that:

1. The total retention time of Class C reclaimed water in wastewater stabilization ponds is at least 20 days.

2. Class C reclaimed water meets the following criteria after treatment and before discharge to a reclaimed water distribution system:

a. The concentration of fecal coliform organisms in four of the last seven reclaimed water samples taken is less than 1000 / 100 ml.

b. The single sample maximum concentration of fecal coliform organisms in a reclaimed water sample is less than 4000 / 100 ml.

C. A person shall use a minimum of Class C reclaimed water for a type of direct reuse listed as Class C in Table A. A person shall not use Class C reclaimed water for a type of direct reuse listed as Class A or Class B in Table A.

(New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-308. Industrial Reuse

A. The reclaimed water quality requirements for the following direct reuse applications are industry-specific and shall be determined by the Department on a case-by-case basis in a reclaimed water permit issued by the Department under 18 A.A.C. 9, Article 7:

1. Direct reuse of industrial wastewater containing sewage.

2. Direct reuse of industrial wastewater for the production or processing of any crop used as human or animal food.

B. The Department shall use best professional judgment to determine the reclaimed water quality requirements needed to protect public health and the environment for a type of direct reuse specified in subsection (A).

(New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-309. Reclaimed Water Quality Standards for an Unlisted Type of Direct Reuse

A. The Department may prescribe in an individual reclaimed water permit issued under 18 A.A.C. 9, Article 7, reclaimed water quality requirements for a type of direct reuse not listed in Table A. Before permitting a direct reuse of reclaimed water not listed in Table A, the Department shall, using its best professional judgment, determine and require compliance with reclaimed water quality requirements needed to protect public health and the environment.

B. Department may determine that Class A+, A, B+, B, or C reclaimed water is appropriate for a new type of direct reuse.

C. The Department shall consider the following factors when prescribing reclaimed water quality requirements for a new type of direct reuse:

1. The risk to public health;

2. The degree of public access to the site where the reclaimed water is reused and human exposure to the reclaimed water;

3. The level of treatment necessary to ensure that the reclaimed water is aesthetically acceptable;

4. The level of treatment necessary to prevent nuisance conditions;

5. Specific water quality requirements for the intended type of direct reuse;

6. The means of application of the reclaimed water;

7. The degree of treatment necessary to avoid a violation of surface water quality standards or aquifer water quality standards;

8. The potential for improper or unintended use of the reclaimed water;

9. The reuse guidelines, criteria, or standards adopted or recommended by the U.S. Environmental Protection Agency or other federal or state agencies that apply to the new type of direct reuse; and

10. Similar wastewater reclamation experience of reclaimed water providers in the United States.

(New Section adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

TABLE A. Minimum Reclaimed Water Quality Requirements for Direct Reuse

Type of Direct Reuse	Minimum Class of Reclaimed Water Required
Irrigation of food crops	A
Recreational impoundments	A
Residential landscape irrigation	A
Schoolground landscape irrigation	A
Open access landscape irrigation	A
Toilet and urinal flushing	A
Fire protection systems	A
Spray irrigation of an orchard or vineyard	A
Commercial closed loop air conditioning systems	A
Vehicle and equipment washing (does not include self-service vehicle washes)	A
Snowmaking	A
Surface irrigation of an orchard or vineyard	B
Golf course irrigation	B
Restricted access landscape irrigation	B
Landscape impoundment	B
Dust control	B
Soil compaction and similar construction activities	B
Pasture for milking animals	B
Livestock watering (dairy animals)	B
Concrete and cement mixing	B
Materials washing and sieving	B
Street cleaning	B
Pasture for non-dairy animals	C
Livestock watering (non-dairy animals)	C
Irrigation of sod farms	C
Irrigation of fiber, seed, forage, and similar crops	C
Silviculture	C

Note: Nothing in this Article prevents a wastewater treatment plant from using a higher quality reclaimed water for a type of direct reuse than the minimum class of reclaimed water listed in Table A. For example, a wastewater treatment plant may provide Class A reclaimed water for a type of direct reuse where Class B or Class C reclaimed water is acceptable.

(New Table adopted by final rulemaking at 7 A.A.R. 870, effective January 22, 2001 (Supp. 01-1).)

§ R18-11-401. Definitions

In addition to the definitions contained in A.R.S. § § 49-101 and 49-201, the terms of this Article shall have the following meanings:

1. "Beta particle and photon radioactivity from man-made radionuclides" means all radionuclides emitting beta particles or photons, except Thorium-232, Uranium-235, Uranium-238 and their progeny.

2. "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements.

3. "Drinking water protected use" means the protection and maintenance of aquifer water quality for human consumption.

4. "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

5. "Mg/l" means milligrams per liter.

6. "Millirem" means 1/1000 of a rem. A rem means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system.

7. "Non-drinking water protected use" means the protection and maintenance of aquifer water quality for a use other than for human consumption.

8. "pCi" means picocurie, or the quantity of radioactive material producing 2.22 nuclear transformations per minute.

9. "Total trihalomethanes" means the sum of the concentrations of the following trihalomethane compounds: trichloromethane (chloroform), dibromo-chloromethane, bromodichloromethane and tribromo-methane (bromoform).

(Adopted effective January 4, 1990 (Supp. 90-1). Amended effective August 14, 1992 (Supp. 92-3).)

§ R18-11-402. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

§ R18-11-403. Analytical Methods

Analysis of a sample to determine compliance with an aquifer water quality standard shall be in accordance with an analytical method specified in A.A.C. Title 9, Chapter 14, Article 6 or an alternative analytical method that is approved by the Director of the Arizona Department of Health Services pursuant to A.A.C. R9-14-607(B).

(Adopted effective January 4, 1990 (Supp. 90-1). Amended effective August 14, 1992 (Supp. 92-3).)

§ R18-11-404. Laboratories

A test result from a sample taken to determine compliance with an aquifer water quality standard shall be valid only if the sample has been analyzed by a laboratory that is licensed by the Arizona Department of Health Services for the analysis performed.

(Adopted effective January 4, 1990 (Supp. 90-1). Amended effective August 14, 1992 (Supp. 92-3).)

§ R18-11-405. Narrative Aquifer Water Quality Standards

A. A discharge shall not cause a pollutant to be present in an aquifer classified for a drinking water protected use in a concentration which endangers human health.

B. A discharge shall not cause or contribute to a violation of a water quality standard established for a navigable water of the state.

C. A discharge shall not cause a pollutant to be present in an aquifer which impairs existing or reasonably foreseeable uses of water in an aquifer.

(Adopted effective January 4, 1990 (Supp. 90-1). Amended effective August 14, 1992 (Supp. 92-3).)

§ R18-11-406. Numeric Aquifer Water Quality Standards: Drinking Water Protected Use

A. The aquifer water quality standards in this Section apply to aquifers that are classified for drinking water protected use.

B. The following are the aquifer water quality standards for inorganic chemicals:

Pollutant	mg/L)
Antimony	0.006
Arsenic	0.05
Asbestos	7 million fibers/liter (longer than 10 mm)
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Cyanide (As Free Cyanide)	0.2
Fluoride	4.0
Lead	0.05
Mercury	0.002
Nickel	0.1
Nitrate (as N)	10
Nitrite (as N)	1
Nitrate and nitrite (as N)	10
Selenium	0.05
Thallium	0.002

C. The following are the aquifer water quality standards for organic chemicals:

Pollutant	(mg/L)
Benzene	0.005
Benzo (a) pyrene	0.0002
Carbon Tetrachloride	0.005
o-Dichlorobenzene	0.6
para-Dichlorobenzene	0.075
1, 2-Dichloroethane	0.005
1, 1-Dichloroethylene	0.007
cis-1, 2-Dichloroethylene	0.07

trans-1, 2-Dichloroethylene	0.1
1, 2-Dichloropropane	0.005
Dichloromethane	0.005
Di (2-ethylhexyl) adipate	0.4
Di (2-ethylhexyl) pthalate	0.006
Ethylbenzene	0.7
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Monochlorobenzene	0.1
Pentachlorophenol	0.001
Styrene	0.1
2, 3, 7, 8-TCDD (Dioxin)	0.00000003
Tetrachloroethylene	0.005
Toluene	1
Trihalomethanes (Total)	0.10
1, 2, 4-Trichlorobenzene	0.07
1, 1, 1-Trichloroethane	0.20
1, 1, 2-Trichloroethane	0.005
Trichloroethylene	0.005
Vinyl Chloride	0.002
Xylenes (Total)	10

D. The following are the aquifer water quality standards for pesticides and polychlorinated biphenyls (PCBs):

Pollutant	(mg/L)
Alachlor	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
Dalapon	0.2
1, 2-Dibromo-3-Chloropropane (DBCP)	0.0002
2, 4, -Dichlorophenoxyacetic Acid(2, 4-D)	0.07
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylene Dibromide (EDB)	0.00005
Glyphosate	0.7
Heptachlor	0.0004

Heptachlor Epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Oxamyl	0.2
Picloram	0.5
Polychlorinated Biphenols (PCBs)	0.0005
Simazine	0.004
Toxaphene	0.003
2, 4, 5-Trichlorophenoxypropionic Acid (2, 4, 5-TP or Silvex)	0.05

E. The following are the aquifer water quality standards for radionuclides:

1. The maximum concentration for gross alpha particle activity, including Radium-226 but excluding radon and uranium, shall not exceed 15 pCi/l.

2. The maximum concentration for combined Radium-226 and Radium-228 shall not exceed 5 pCi/l.

3. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

4. Except for the radionuclides listed in this subsection, the concentration of man-made radionuclides causing 4 millirem total body or organ dose equivalents shall be calculated on the basis of a 2-liter-per-day drinking water intake using the 168-hour data listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, " National Bureau of Standards Handbook 69, National Bureau of Commerce, as amended August 1963 (and no future editions), incorporated herein by reference and on file with the Office of the Secretary of State and with the Department. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year. The following average annual concentrations are assumed to produce a total body or organ dose of 4 millirem/year:

Radionuclide	Critical Organ	pCi/l
Tritium	Total body	20, 000
Strontium-90	Bone Marrow	8

F. The aquifer water quality standard for microbiological contaminants is based upon the presence or absence of total coliforms in a 100-milliliter sample. If a sample is total coliform-positive, a 100-milliliter repeat sample

shall be taken within two weeks of the time the sample results are reported. Any total coliform-positive repeat sample following a total coliform-positive sample constitutes a violation of the aquifer water quality standard for microbiological contaminants.

G. The following are the aquifer water quality standards for turbidity:

1. One nephelometric turbidity unit as determined by a monthly average except that five or fewer nephelometric turbidity units may be allowed if it can be determined that the higher turbidity does not interfere with disinfection, prevent maintenance of effective disinfectant agents in water supply distribution systems, or interfere with microbiological determinations.

2. Five nephelometric turbidity units based on an average of two consecutive days.

(Adopted effective January 4, 1990 (Supp. 90-1). Amended effective August 14, 1992 (Supp. 92-3). Amended effective May 26, 1994 (Supp. 94-2).)

§ R18-11-407. Aquifer Water Quality Standards in Reclassified Aquifers

A. All aquifers in the state are classified for drinking water protected use except for aquifers which are reclassified to a non-drinking water protected use pursuant to A.R.S. § 49-224 and A.A.C. R18-11-503.

B. Aquifer water quality standards for drinking water protected use apply to reclassified aquifers except where expressly superseded by aquifer water quality standards adopted pursuant to subsection (C) of this Section.

C. The Director shall adopt, by rule, aquifer water quality standards for reclassified aquifers within one year of the date of the order reclassifying the aquifer to a nondrinking water protected use. The Director shall adopt aquifer water quality standards for reclassified aquifers only for pollutants that are specifically identified in a petition for reclassification as prescribed by A.R.S. § 49-223(D) and A.A.C. R18-11-503(B). Aquifer water quality standards for reclassified aquifers shall be sufficient to protect the use of the reclassified aquifer.

(Adopted effective January 4, 1990 (Supp. 90-1). Amended effective August 14, 1992 (Supp. 92-3).)

§ R18-11-408. Petition for Adoption of a Numeric Aquifer Water Quality Standard

A. Any person may petition the Director to adopt, by rule, a numeric aquifer water quality standard for a pollutant for which no numeric aquifer water quality standard exists.

B. Petitions for adoption of a numeric aquifer water quality standard shall be filed with the Department and shall comply with the requirements applicable to petitions for rule adoption as provided by A.R.S. § 41-1033 and A.A.C. R18-1-302, except as otherwise provided by A.R.S. § 49-223 or this Section.

C. In addition to the requirements of A.A.C. R18-1-302, a petition for rule adoption to establish a numeric aquifer water quality standard shall include specific reference to:

1. Technical information that the pollutant is a toxic pollutant.

2. Technical information upon which the Director reasonably may base the establishment of a numeric aquifer water quality standard.

3. Evidence that the pollutant that is the subject of the petition is or may in the future be present in an aquifer or part of an aquifer that is classified for drinking water protected use. Evidence may include, but is not limited to, any of the following:

a. A laboratory analysis of a water sample by a laboratory licensed by the Arizona Department of Health Services which indicates the presence of the pollutant in the aquifer.

b. A hydrogeological study which demonstrates that the pollutant that is the subject of the petition may be present in an aquifer in the future. The hydrogeological study shall include the following:

i. A description of the use that results in a discharge of the pollutant that is the subject of the petition.

ii. A description of the mobility of the pollutant in the vadose zone and in the aquifer.

iii. A description of the persistence of the pollutant in the vadose zone and in the aquifer.

D. Within 180 calendar days of the receipt of a complete petition for rule adoption to establish a numeric aquifer water quality standard, the Director

shall make a written determination of whether the petition should be granted or denied. The Director shall give written notice by regular mail of the determination to the petitioner.

E. If the petition for rule adoption is granted, the Director shall initiate rulemaking proceedings to adopt a numeric aquifer water quality standard. The Director shall, within one year of the date that the petition for adoption of a numeric aquifer water quality standard is granted, either adopt a rule establishing a numeric aquifer water quality standard or publish a notice of termination of rulemaking in the Arizona Administrative Register.

F. If the petition for rule adoption is denied, the Director shall issue a denial letter to the petitioner which explains the reasons for the denial. The denial of a petition for rule adoption to establish a numeric aquifer water quality standard is not subject to judicial review.

(Adopted effective January 4, 1990 (Supp. 90-1).)

APPENDIX 1. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

APPENDIX 2. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

APPENDIX 3. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

APPENDIX 4. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

APPENDIX 5. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

APPENDIX 6. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

APPENDIX 7. Repealed

(Adopted effective January 4, 1990 (Supp. 90-1). Repealed effective August 14, 1992 (Supp. 92-3).)

§ R18-11-501. Definitions

In addition to the definitions contained in A.R.S. § 49-201, the words and phrases of this Article shall have the following meaning:

1. "Drinking water protected use" means the protection and maintenance of aquifer water quality for human consumption.

2. "Hardrock areas containing little or no water" means areas of igneous or metamorphic rock which do not yield usable quantities of water.

3. "Nondrinking water protected use" means the protection and maintenance of aquifer water quality for a use other than human consumption.

4. "Usable quantities" means five gallons of water per day.

(Adopted effective October 22, 1987 (Supp. 87-4).)

§ R18-11-502. Aquifer Boundaries

A. Except as provided in subsection (B) of this rule, aquifer boundaries for the aquifers in this state are identified and defined as being identical to the hydrologic basin and subbasin boundaries, as found by the Director of the Department of Water Resources, Findings and Order In the Matter of The Designation of Groundwater Basins and Subbasins In The State of Arizona (dated June 21, 1984), pursuant to A.R.S. § § 45-403 and 45-404, which is incorporated herein by reference and on file with the Department of Environmental Quality and the Office of the Secretary of State.

B. Excluded from the boundaries of the aquifers are hard rock areas which contain little or no water, as identified in Plate 1 of the Department of Water Resources, Water Resource Hydrologic Map Series Report Number 2 (dated January 1981) and as further identified in the Bureau of Mines, University of Arizona County Geologic Map Series (individual county maps dated 1957 through 1960), which are incorporated herein by reference and on file with the Department of Environmental Quality and the Office of the Secretary of State.

C. The Director may, by rule, modify or add an aquifer boundary provided that one or more of the following applies:

1. The Department of Water Resources modifies the boundaries of its basins or subbasins.

2. The Director is made aware of new technical information or data which supports refinement of an aquifer boundary.

D. Facilities located outside of the boundaries defined in these rules shall be subject to A.R.S. § 49-241 except as provided therein.

(Adopted effective October 22, 1987 (Supp. 87-4).)

§ R18-11-503. Petition for Reclassification

A. Any person may petition the Director to reclassify an aquifer from a drinking water protected use to a nondrinking water protected use pursuant to A.R.S. § 49-224(C).

B. A written petition for reclassification pursuant to A.R.S. § 49-224(C) or A.R.S. § 49-224(D) shall be filed with the Department and shall include the following categories of information:

1. The proposed protected use for which the reclassification is being requested.

2. The pollutant and affected aquifer water quality standards for which the reclassification is being requested.

3. A hydrogeologic report which demonstrates that the aquifer proposed for reclassification is or will be hydrologically isolated, to the extent described in A.R.S. § 49-224(C)(1). This report and demonstration of hydrologic isolation for the area containing such aquifer, and immediate adjacent geologic units, shall include at least the following:

a. Hydrogeologic area maps and cross sections.

b. An analysis of subsurface geology, including geologic and hydrologic separation.

c. Water level elevation or piezometric level contour maps.

d. Analysis of hydrologic characteristics of the aquifer and the immediate adjacent geologic units.

e. Description of existing water quality and analysis of water chemistry.

f. Projected annual quantity of water to be withdrawn.

g. Identification of pumping centers, cones of depression and areas of recharge.

h. A water balance.

i. Existing flow direction and evaluation of the effects of seasonal and future pumping on flow.

j. An evaluation as to whether the reclassification will contribute to or cause a violation of aquifer water quality standards in other aquifers, or in parts of the aquifer not being proposed for reclassification.

4. Documentation demonstrating that water from the aquifer or part of the aquifer for which reclassification is proposed is not being used as drinking water. This documentation shall include at least the following:

a. A list of all wells or springs including their location, ownership and use within the aquifer or part of the aquifer being proposed for reclassification.

b. Identification of groundwater withdrawal rights, on file with the Department of Water Resources, within the aquifer or part of the aquifer being proposed for reclassification.

c. A comprehensive list of agencies, persons and other information sources consulted for aquifer use documentation.

5. A cost-benefit analysis developed pursuant to the requirements of A.R.S. § 49-224(C)(3), except for petitions submitted pursuant to A.R.S. § 49-224(D). This analysis shall identify potential future uses of the aquifer being proposed for reclassification, as well as other opportunity costs associated with reclassification, and shall contain a description of the cost-benefit methodology used, including all assumptions, data, data sources and criteria considered and all supporting statistical analyses.

(Adopted effective October 22, 1987 (Supp. 87-4).)

§ R18-11-504. Agency Action on Petition

A. Upon receipt of a petition for reclassification, the Director shall review the petition for compliance with the requirements of R18-11-503. If additional information is necessary, the petitioner shall be notified of specific deficiencies in writing within 30 calendar days of receipt of the petition.

B. Within 120 calendar days after receipt of a complete petition, and after consultation with the appropriate advisory council pursuant to A.R.S. § § 49-224(C) and 49-204, the Director shall make a final decision to grant or deny the petition and shall notify the petitioner of such decision and the reason for such determination in writing.

C. Upon a decision to grant a petition for aquifer reclassification, the Director shall initiate proceedings for promulgation of aquifer water quality standards and, if applicable, for aquifer boundary designation for the reclassified aquifers.

(Adopted effective October 22, 1987 (Supp. 87-4).)

§ R18-11-505. Public Participation

A. Within 30 days of receipt of a complete petition for reclassification filed pursuant to A.R.S. § 49-224(D), or if the Director deems it necessary to consider a reclassification under A.R.S. § 49-224(C), the Director shall give public notice of the proposed reclassification pursuant to A.A.C. R18-1-401.

B. The Director shall hold at least one public hearing at a location as near as practicable to the aquifer proposed for reclassification. The Director shall give notice of each public hearing and conduct the public hearing in accordance with the provisions of A.A.C. R18-1-402.

(Adopted effective June 29, 1989 (Supp. 89-2).)

§ R18-11-506. Rescission of Reclassification

The Director may, by rule, rescind an aquifer reclassification and return an aquifer to a drinking water protected use if he determines that any of the conditions under which the reclassification was granted are no longer valid. If the Director initiates a change under this Section, he shall consult with the appropriate advisory council pursuant to A.R.S. § § 49-224(C) and 49-204.

(Adopted effective October 22, 1987 (Supp. 87-4).)

§ R18-11-601. Definitions

In addition to the definitions established in A.R.S. § § 49-201 and 49-231, and A.A.C. R18-11-101, the following terms apply to this Article:

1. "303(d) List" means the list of surface waters or segments required under section 303(d) of the Clean Water Act and A.R.S. Title 49, Chapter 2, Article 2.1, for which TMDLs are developed and submitted to EPA for approval.

2. "Attaining" means there is sufficient, credible, and scientifically defensible data to assess a surface water or segment and the surface water or segment does not meet the definition of impaired or not attaining.

3. "AZPDES" means the Arizona Pollutant Elimination Discharge System.

4. "Credible and scientifically defensible data" means data submitted, collected, or analyzed using:

a. Quality assurance and quality control procedures under A.A.C. R18-11-602;

b. Samples or analyses representative of water quality conditions at the time the data were collected;

c. Data consisting of an adequate number of samples based on the nature of the water in question and the parameters being analyzed; and

d. Methods of sampling and analysis, including analytical, statistical, and modeling methods that are generally accepted and validated by the scientific community as appropriate for use in assessing the condition of the water.

5. "Designated use" means those uses specified in 18 A.A.C. 11, Article 1 for each surface water or segment whether or not they are attaining.

6. "EPA" means the U.S. Environmental Protection Agency.

7. "Impaired water" means a Navigable water for which credible scientific data exists that satisfies the requirements of A.R.S. § 49-232 and that demonstrates that the water should be identified pursuant to 33 United States Code § 1313(d) and the regulations implementing that statute. A.R.S. § 49-231(1).

8. "Laboratory detection limit" means a "Method Reporting Limit" (MRL) or "Reporting Limit" (RL). These analogous terms describe the laboratory reported value, which is the lowest concentration level included on the

calibration curve from the analysis of a pollutant that can be quantified in terms of precision and accuracy.

9. "Monitoring entity" means the Department or any person who collects physical, chemical, or biological data used for an impaired water identification or a TMDL decision.

10. "Naturally occurring condition" means the condition of a surface water or segment that would have occurred in the absence of pollutant loadings as a result of human activity.

11. "Not attaining" means a surface water is assessed as impaired, but is not placed on the 303(d) List because:

a. A TMDL is prepared and implemented for the surface water;

b. An action, which meets the requirements of R18-11-604(D)(2)(h), is occurring and is expected to bring the surface water to attaining before the next 303(d) List submission; or

c. The impairment of the surface water is due to pollution but not a pollutant, for which a TMDL load allocation cannot be developed.

12. "NPDES" means National Pollutant Discharge Elimination System.

13. "Planning List" means a list of surface waters and segments that the Department will review and evaluate to determine if the surface water or segment is impaired and whether a TMDL is necessary.

14. "Pollutant" means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. 33 U.S.C. 1362(6). Characteristics of water, such as dissolved oxygen, pH, temperature, turbidity, and suspended sediment are considered pollutants if they result or may result in the non-attainment of a water quality standard.

15. "Pollution" means "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." 33 U.S.C. 1362(19).

16. "QAP" means a quality assurance plan detailing how environmental data operations are planned, implemented, and assessed for quality during the duration of a project.

17. "Sampling event" means one or more samples taken under consistent conditions on one or more days at a distinct station or location.

18. "SAP" means a site specific sampling and analysis plan that describes the specifics of sample collection to ensure that data quality objectives are met and that samples collected and analyzed are representative of surface water conditions at the time of sampling.

19. "Spatially independent sample" means a sample that is collected at a distinct station or location. The sample is independent if the sample was collected:

a. More than 200 meters apart from other samples, or

b. Less than 200 meters apart, and collected to characterize the effect of an intervening tributary, outfall or other pollution source, or significant hydrographic or hydrologic change.

20. "Temporally independent sample" means a sample that is collected at the same station or location more than seven days apart from other samples.

21. "Threatened" means that a surface water or segment is currently attaining its designated use, however, trend analysis, based on credible and scientifically defensible data, indicates that the surface water or segment is likely to be impaired before the next listing cycle.

22. "TMDL" means total maximum daily load.

23. "TMDL decision" means a decision by the Department to:

a. Prioritize an impaired water for TMDL development,

b. Develop a TMDL for an impaired water, or

c. Develop a TMDL implementation plan.

24. "Total maximum daily load" means an estimation of the total amount of a pollutant from all sources that may be added to a water while still allowing the water to achieve and maintain applicable surface water quality standards. Each total maximum daily load shall include allocations for sources that contribute the pollutant to the water, as required by section 303(d) of the clean water act (33 United States Code section 1313(d)) and regulations implementing that statute to achieve applicable surface water quality standards. A.R.S. § 49-231(4).

25. "Water quality standard" means a standard composed of designated uses (classification of waters), the numerical and narrative criteria applied to the specific water uses or classification, the antidegradation policy, and moderating provisions, for example, mixing zones, site-specific alternative criteria, and exemptions, in A.A.C. Title 18, Chapter 11, Article 1.

26. "WQARF" means the water quality assurance revolving fund established under A.R.S. § 49-282.

(New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).)

§ R18-11-602. Credible Data

A. Data are credible and relevant to an impaired water identification or a TMDL decision when:

1. Quality Assurance Plan. A monitoring entity, which contribute data for an impaired water identification or a TMDL decision, provides the Department with a QAP that contains, at a minimum, the elements listed in subsections (A)(1)(a) through (A)(1)(f). The Department may accept a QAP containing less than the required elements if the Department determines that an element is not relevant to the sampling activity and that its omission will not impact the quality of the results based upon the type of pollutants to be sampled, the type of surface water, and the purpose of the sampling.

a. An approval page that includes the date of approval and the signatures of the approving officials, including the project manager and project quality assurance manager;

b. A project organization outline that identifies all key personnel, organizations, and laboratories involved in monitoring, including the specific roles and responsibilities of key personnel in carrying out the procedures identified in the QAP and SAP, if applicable;

c. Sampling design and monitoring data quality objectives or a SAP that meets the requirements of subsection (A)(2) to ensure that:

i. Samples are spatially and temporally representative of the surface water,

ii. Samples are representative of water quality conditions at the time of sampling, and

iii. The monitoring is reproducible;

d. The following field sampling information to assure that samples meet data quality objectives:

i. Sampling and field protocols for each parameter or parametric group, including the sampling methods, equipment and containers, sample preservation, holding times, and any analysis proposed for completion in the field or outside of a laboratory;

ii. Field and laboratory methods approved under subsection (A)(5);

iii. Handling procedures to identify samples and custody protocols used when samples are brought from the field to the laboratory for analysis;

iv. Quality control protocols that describe the number and type of field quality control samples for the project that includes, if appropriate for the type of sampling being conducted, field blanks, travel blanks, equipment blanks, method blanks, split samples, and duplicate samples;

v. Procedures for testing, inspecting, and maintaining field equipment;

vi. Field instrument calibration procedures that describe how and when field sampling and analytical instruments will be calibrated;

vii. Field notes and records that describe the conditions that require documentation in the field, such as weather, stream flow, transect information, distance from water edge, water and sample depth, equipment calibration measurements, field observations of watershed activities, and bank conditions. Indicate the procedures implemented for maintaining field notes and records and the process used for attaching pertinent information to monitoring results to assist in data interpretation;

viii. Minimum training and any specialized training necessary to do the monitoring, that includes the proper use and calibration of field equipment used to collect data, sampling protocols, quality assurance/quality control procedures, and how training will be achieved;

e. Laboratory analysis methods and quality assurance/quality control procedures that assure that samples meet data quality objectives, including:

i. Analytical methods and equipment necessary for analysis of each parameter, including identification of approved laboratory methods described in subsection (A)(5), and laboratory detection limits for each parameter;

ii. The name of the designated laboratory, its license number, if licensed by the Arizona Department of Health Services, and the name of a laboratory contact person to assist the Department with quality assurance questions;

iii. Quality controls that describe the number and type of laboratory quality control samples for the project, including, if appropriate for the type of sampling being conducted, field blanks, travel blanks, equipment blanks, method blanks, split samples, and duplicate samples;

iv. Procedures for testing, inspecting, and maintaining laboratory equipment and facilities;

v. A schedule for calibrating laboratory instruments, a description of calibration methods, and a description of how calibration records are maintained; and

vi. Sample equipment decontamination procedures that outline specific methods for sample collection and preparation of equipment, identify the frequency of decontamination, and describe the procedures used to verify decontamination;

f. Data review, management, and use that includes the following:

i. A description of the data handling process from field to laboratory, from laboratory to data review and validation, and from validation to data storage and use. Include the role and responsibility of each person for each step of the process, type of database or other storage used, and how laboratory and field data qualifiers are related to the laboratory result;

ii. Reports that describe the intended frequency, content, and distribution of final analysis reports and project status reports;

iii. Data review, validation, and verification that describes the procedure used to validate and verify data, the procedures used if errors are detected, and how data are accepted, rejected, or qualified; and

iv. Reconciliation with data quality objectives that describes the process used to determine whether the data collected meets the project objectives, which may include discarding data, setting limits on data use, or revising data quality objectives.

2. Sampling and analysis plan.

a. A monitoring entity shall develop a SAP that contains, at a minimum, the following elements:

i. The experimental design of the project, the project goals and objectives, and evaluation criteria for data results;

ii. The background or historical perspective of the project;

iii. Identification of target conditions, including a discussion of whether any weather, seasonal variations, stream flow, lake level, or site access may affect the project and the consideration of these factors;

iv. The data quality objectives for measurement of data that describe in quantitative and qualitative terms how the data meet the project objectives of precision, accuracy, completeness, comparability, and representativeness;

v. The types of samples scheduled for collection;

vi. The sampling frequency;

vii. The sampling periods;

viii. The sampling locations and rationale for the site selection, how site locations are benchmarked, including scaled maps indicating approximate location of sites; and

ix. A list of the field equipment, including tolerance range and any other manufacturer's specifications relating to accuracy and precision.

b. The Department may accept a SAP containing less than the required elements if the Department determines that an element is not relevant to the sampling activity and that its omission will not impact the quality of the results based upon the type of pollutants to be samples, the type of surface water, and the purpose of the sampling.

3. The monitoring entity may include any of the following in the QAP or SAP:

a. The name, title, and role of each person and organization involved in the project, identifying specific roles and responsibilities for carrying out the procedures identified in the QAP and SAP;

b. A distribution list of each individual and organization receiving a copy of the approved QAP and SAP;

c. A table of contents;

d. A health and safety plan;

e. The inspection and acceptance requirements for supplies;

f. The data acquisition that describes types of data not obtained through this monitoring activity, but used in the project;

g. The audits and response actions that describe how field, laboratory, and data management activities and sampling personnel are evaluated to ensure data quality, including a description of how the project will correct any problems identified during these assessments; and

h. The waste disposal methods that identify wastes generated in sampling and methods for disposal of those wastes.

4. Exceptions. The Department may determine that the following data are also credible and relevant to an impaired water identification or TMDL decision when data were collected, provided the conditions in subsections

(A)(5), (A)(6), and (B) are met, and where the data were collected in the surface water or segment being evaluated for impairment:

a. The data were collected before July 12, 2002 and the Department determines that the data yield results of comparable reliability to the data collected under subsections (A)(1) and (A)(2);

b. The data were collected after July 12, 2002 as part of an ongoing monitoring effort by a governmental agency and the Department determines that the data yield results of comparable reliability to the data collected under subsections (A)(1) and (A)(2); or

c. The instream water quality data were or are collected under the terms of a NPDES or AZPDES permit or a compliance order issued by the Department or EPA, a consent decree signed by the Department or EPA, or a sampling program approved by the Department or EPA under WQARF or CERCLA, and the Department determines that the data yield results of comparable reliability to data collected under subsections (A)(1) and (A)(2).

5. Data collection, preservation, and analytical procedures. The monitoring entity shall collect, preserve, and analyze data using methods of sample collection, preservation, and analysis established under A.A.C. R9-14-610.

6. Laboratory. The monitoring entity shall ensure that chemical and toxicological samples are analyzed in a state-licensed laboratory, a laboratory exempted by the Arizona Department of Health Services for specific analyses, or a federal or academic laboratory that can demonstrate proper quality assurance/quality control procedures substantially equal to those required by the Arizona Department of Health Services, and shall ensure that the laboratory uses approved methods identified in A.A.C. R9-14-610.

B. Documentation for data submission. The monitoring entity shall provide the Department with the following information either before or with data submission:

1. A copy of the QAP or SAP, or both, revisions to a previously submitted QAP or SAP, and any other information necessary for the Department to evaluate the data under subsection (A)(4);

2. The applicable dates of the QAP and SAP, including any revisions;

3. Written assurance that the methods and procedures specified in the QAP and SAP were followed;

4. The name of the laboratory used for sample analyses and its certification number, if the laboratory is licensed by the Arizona Department of Health Services;

5. The quality assurance/quality control documentation, including the analytical methods used by the laboratory, method number, detection limits, and any blank, duplicate, and spike sample information necessary to properly interpret the data, if different from that stated in the QAP or SAP;

6. The data reporting unit of measure;

7. Any field notes, laboratory comments, or laboratory notations concerning a deviation from standard procedures, quality control, or quality assurance that affects data reliability, data interpretation, or data validity; and

8. Any other information, such as complete field notes, photographs, climate, or other information related to flow, field conditions, or documented sources of pollutants in the watershed, if requested by the Department for interpreting or validating data.

C. Recordkeeping. The monitoring entity shall maintain all records, including sample results, for the duration of the listing cycle. If a surface water or segment is added to the Planning List or to the 303(d) List, the Department shall coordinate with the monitoring entity to ensure that records are kept for the duration of the listing.

(New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).)

§ R18-11-603. General Data Interpretation Requirements

A. The Department shall use the following data conventions to interpret data for impaired water identifications and TMDL decisions:

1. Data reported below laboratory detection limits.

a. When the analytical result is reported as

i. Use these statistically derived values in trend analysis, descriptive statistics or modeling if there is sufficient data to support the statistical estimation of values reported as less than the laboratory detection limit; or

ii. Use one-half of the value of the laboratory detection limit in trend analysis, descriptive statistics, or modeling, if there is insufficient data to support the statistical estimation of values reported as less than the laboratory detection limit.

b. When the sample value is less than or equal to the laboratory detection limit but the laboratory detection limit is greater than the surface water quality standard, shall not use the result for impaired water identifications or TMDL decisions;

2. Identify the field equipment specifications used for each listing cycle or TMDL developed. A field sample measurement within the manufacturer's specification for accuracy meets surface water quality standards;

3. Resolve a data conflict by considering the factors identified under the weight-of-evidence determination in R18-11-605(B);

4. When multiple samples from a surface water or segment are not spatially or temporally independent, or when lake samples are from multiple depths, use the following resultant value to represent the specific dataset:

a. The appropriate measure of central tendency for the dataset for:

i. A pollutant listed in the surface water quality standards 18 A.A.C. 11, Article 1, Appendix A, Table 1, except for nitrate or nitrate/nitrite;

ii. A chronic water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 2;

iii. A surface water quality standard for a pollutant that is expressed as an annual or geometric mean;

iv. The surface water quality standard for temperature or the single sample maximum water quality standard for suspended sediment concentration, nitrogen, and phosphorus in R18-11-109;

v. The surface water quality standard for radiochemicals in R18-11-109(G); or

vi. Except for chromium, all single sample maximum water quality standards in R18-11-112.

b. The maximum value of the dataset for:

i. The acute water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 2 and acute water quality standard in R18-11-112;

ii. The surface water quality standard for nitrate or nitrate/nitrite in 18 A.A.C. 11, Article 1, Appendix A, Table 1;

iii. The single sample maximum water quality standard for bacteria in subsections R18-11-109(A); or

iv. The 90th percentile water quality standard for nitrogen and phosphorus in R18-11-109(F) and R18-11-112.

c. The worst case measurement of the dataset for:

i. Surface water quality standard for dissolved oxygen under R18-11-109(E). For purposes of this subsection, worst case measurement means the minimum value for dissolved oxygen;

ii. Surface water quality standard for pH under R18-11-109(B). For purposes of this subsection, "worst case measurement" means both the minimum and maximum value for pH.

B. The Department shall not use the following data for placing a surface water or segment on the Planning List, the 303(d) List, or in making a TMDL decision.

1. Any measurement outside the range of possible physical or chemical measurements for the pollutant or measurement equipment,

2. Uncorrected data transcription errors or laboratory errors, and

3. An outlier identified through statistical procedures, where further evaluation determines that the outlier represents a valid measure of water quality but should be excluded from the dataset.

C. The Department may employ fundamental statistical tests if appropriate for the collected data and type of surface water when evaluating a surface water or segment for impairment or in making a TMDL decision. The statistical tests include descriptive statistics, frequency distribution, analysis of variance, correlation analysis, regression analysis, significance testing, and time series analysis.

D. The Department may employ modeling when evaluating a surface water or segment for impairment or in making a TMDL decision, if the method is appropriate for the type of waterbody and the quantity and quality of available data meet the requirements of R18-11-602. Modeling methods include:

1. Better Assessment Science Integrating Source and Nonpoint Sources (BASINS),

2. Fundamental statistics, including regression analysis,

3. Hydrologic Simulation Program-Fortran (HSPF),

4. Spreadsheet modeling, and

5. Hydrologic Engineering Center (HEC) programs developed by the Army Corps of Engineers.

(New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).)

§ R18-11-604. Types of Surface Waters Placed on the Planning List and 303(d) List

A. The Department shall evaluate, at least every five years, Arizona's surface waters by considering all readily available data.

1. The Department shall place a surface water or segment on:

a. The Planning List if it meets any of the criteria described in subsection (D), or

b. The 303(d) List if it meets the criteria for listing described in subsection (E).

2. The Department shall remove a surface water or segment from the Planning List based on the requirements in R18-11-605(E)(1) or from the 303(d) List, based on the requirements in R18-11-605(E)(2).

3. The Department may move surface waters or segments between the Planning List and the 303(d) List based on the criteria established in R18-11-604 and R18-11-605.

B. When placing a surface water or segment on the Planning List or the 303(d) List, the Department shall list the stream reach, derived from EPA's Reach File System or National Hydrography Dataset, or the entire lake, unless the data indicate that only a segment of the stream reach or lake is impaired or not attaining its designated use, in which case, the Department shall describe only that segment for listing.

C. Exceptions. The Department shall not place a surface water or segment on either the Planning List or the 303(d) List if the non-attainment of a surface water quality standard is due to one of the following:

1. Pollutant loadings from naturally occurring conditions alone are sufficient to cause a violation of applicable water quality standards;

2. The data were collected within a mixing zone or under a variance or nutrient waiver established in a NPDES or AZPDES permit for the specific parameter and the result does not exceed the alternate discharge limitation established in the permit. The Department may use data collected within these areas for modeling or allocating loads in a TMDL decision; or

3. An activity exempted under R18-11-117, R18-11-118, or a condition exempted under R18-11-119.

D. Planning List.

1. The Department shall:

a. Use the Planning List to prioritize surface waters for monitoring and evaluation as part of the Department's watershed management approach;

b. Provide the Planning List to EPA; and

c. Evaluate each surface water and segment on the Planning List for impairment based on the criteria in R18-11-605(D) to determine the source of the impairment.

2. The Department shall place a surface water or segment on the Planning List based the criteria in R18-11-605(C). The Department may also include a surface water or segment on the Planning List when:

a. A TMDL is completed for the pollutant and approved by EPA;

b. The surface water or segment is on the 1998 303(d) List but the dataset used for the listing:

i. Does not meet the credible data requirements of R18-11-602, or

ii. Contains insufficient samples to meet the data requirements under R18-11-605(D);

c. Some monitoring data exist but there are insufficient data to determine whether the surface water or segment is impaired or not attaining, including:

i. A numeric surface water quality standard is exceeded, but there are not enough samples or sampling events to fulfill the requirements of R18-11-605(D);

ii. Evidence exists of a narrative standard violation, but the amount of evidence is insufficient, based on narrative implementation procedures and the requirements of R18-11-605(D)(3);

iii. Existing monitoring data do not meet credible data requirements in R18-11-602; or

iv. A numeric surface water quality standard is exceeded, but there are not enough sample results above the laboratory detection limit to support statistical analysis as established in R18-11-603(A)(1).

d. The surface water or segment no longer meets the criteria for impairment based on a change in the applicable surface water quality standard or a designated use approved by EPA under section 303(c)(1) of the Clean Water

Act, but insufficient current or original monitoring data exist to determine whether the surface water or segment will meet current surface water quality standards;

e. Trend analysis using credible and scientifically defensible data indicate that surface water quality standards may be exceeded by the next assessment cycle;

f. The exceedance of surface water quality standards is due to pollution, but not a pollutant;

g. Existing data were analyzed using methods with laboratory detection limits above the numeric surface water quality standard but analytical methods with lower laboratory detection limits are available;

h. The surface water or segment is expected to attain its designated use by the next assessment as a result of existing or proposed technology-based effluent limitations or other pollution control requirements under local, state, or federal authority. The appropriate entity shall provide the Department with the following documentation to support placement on the Planning List:

i. Verification that discharge controls are required and enforceable;

ii. Controls are specific to the surface water or segment, and pollutant of concern;

iii. Controls are in place or scheduled for implementation; and

iv. There are assurances that the controls are sufficient to bring about attainment of water quality standards by the next 303(d) List submission; or

i. The surface water or segment is threatened due to a pollutant and, at the time the Department submits a final 303(d) List to EPA, there are no federal regulations implementing section 303(d) of the Clean Water Act that require threatened waters be included on the list.

E. 303(d) List. The Department shall:

1. Place a surface water or segment on the 303(d) List if the Department determines:

a. Based on R18-11-605(D), that the surface water or segment is impaired due to a pollutant and that a TMDL decision is necessary; or

b. That the surface water or segment is threatened due to a pollutant and, at the time the Department submits a final 303(d) List to EPA, there are federal regulations implementing section 303(d) of the Clean Water Act that require threatened waters be included on the list.

2. Provide public notice of the 303(d) List according to the requirements of A.R.S. § 49-232 and submit the 303(d) List according to section 303(d) of the Clean Water Act.

(New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).)

§ R18-11-605. Evaluating a Surface Water or Segment for Listing and Delisting

A. The Department shall compile and evaluate all reasonably current, credible, and scientifically defensible data to determine whether a surface water or segment is impaired or not attaining.

B. Weight-of-evidence approach.

1. The Department shall consider the following concepts when evaluating data:

a. Data or information collected during critical conditions may be considered separately from the complete dataset, when the data show that the surface water or segment is impaired or not attaining its designated use during those critical conditions, but attaining its uses during other periods. Critical conditions may include stream flow, seasonal periods, weather conditions, or anthropogenic activities;

b. Whether the data indicate that the impairment is due to persistent, seasonal, or recurring conditions. If the data do not represent persistent, recurring, or seasonal conditions, the Department may place the surface water or segment on the Planning List;

c. Higher quality data over lower quality data when making a listing decision. Data quality is established by the reliability, precision, accuracy, and representativeness of the data, based on factors identified in R18-11-602(A) and (B), including monitoring methods, analytical methods, quality control procedures, and the documented field and laboratory quality control information submitted with the data. The Department shall consider the following factors when determining higher quality data:

i. The age of the measurements. Newer measurements are weighted heavier than older measurements, unless the older measurements are more representative of critical flow conditions;

ii. Whether the data provide a direct measure of an impact on a designated use. Direct measurements are weighted heavier than measurements of an indicator or surrogate parameter; or

iii. The amount or frequency of the measurements. More frequent data collection are weighted heavier than nominal datasets.

2. The Department shall evaluate the following factors to determine if the water quality evidence supports a finding that the surface water or segment is impaired or not attaining:

a. An exceedance of a numeric surface water quality standard based on the criteria in subsections (C)(1), (C)(2), (D)(1), and (D)(2);

b. An exceedance of a narrative surface water quality standard based on the criteria in subsections (C)(3) and (D)(3);

c. Additional information that determines whether a water quality standard is exceeded due to a pollutant, suspected pollutant, or naturally occurring condition:

i. Soil type, geology, hydrology, flow regime, biological community, geomorphology, climate, natural process, and anthropogenic influence in the watershed;

ii. The characteristics of the pollutant, such as its solubility in water, bioaccumulation potential, sediment sorption potential, or degradation characteristics, to assist in determining which data more accurately indicate the pollutant's presence and potential for causing impairment; and

iii. Available evidence of direct or toxic impacts on aquatic life, wildlife, or human health, such as fish kills and beach closures, where there is sufficient evidence that these impacts occurred due to water quality conditions in the surface water.

d. Other available water quality information, such as NPDES or AZPDES water quality discharge data, as applicable.

e. If the Department determines that a surface water or segment does not merit listing under numeric water quality standards based on criteria in subsections (C)(1), (C)(2), (D)(1), or (D)(2) for a pollutant, but there is evidence of a narrative standard exceedance in that surface water or segment under subsection (D)(3) as a result of the presence of the same pollutant, the Department shall list the surface water or segment as impaired only when the evidence indicates that the numeric water quality standard is insufficient to protect the designated use of the surface water or segment and the Department justifies the listing based on any of the following:

i. The narrative standard data provide a more direct indication of impairment as supported by professionally prepared and peer-reviewed publications;

ii. Sufficient evidence of impairment exists due to synergistic effects of pollutant combinations or site-specific environmental factors; or

iii. The pollutant is bioaccumulative, relatively insoluble in water, or has other characteristics that indicate it is occurring in the specific surface water or segment at levels below the laboratory detection limits, but at levels sufficient to result in an impairment.

3. The Department may consider a single line of water quality evidence when the evidence is sufficient to demonstrate that the surface water or segment is impaired or not attaining.

C. Planning List.

1. When evaluating a surface water or segment for placement on the Planning List.

a. Consider at least ten spatially or temporally independent samples collected over three or more temporally independent sampling events; and

b. Determine numeric water quality standards exceedances. The Department shall:

i. Place a surface water or segment on the Planning List following subsection (B), if the number of exceedances of a surface water quality standard is greater than or equal to the number listed in Table 1, which provides the number of exceedances that indicate a minimum of a 10 percent exceedance frequency with a minimum of a 80 percent confidence level using a binomial distribution for a given sample size; or

ii. *For sample datasets exceeding those shown in Table 1, calculate the number of exceedances using the following equation: (X[GREATOR THAN EQUAL TO] x| n, p) where n = number of samples; p = exceedance probability of 0.1; x = smallest number of exceedances required for listing with "n" samples; and confidence level [GREATOR THAN EQUAL TO] 80 percent.*

TABLE 1.

MINIMUM NUMBER OF SAMPLES EXCEEDING THE NUMERIC STANDARD								
Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard
From	To		From	To		From	To	
10	15	3	173	181	22	349	357	41
16	23	4	182	190	23	358	367	42
24	31	5	191	199	24	368	376	43
32	39	6	200	208	25	377	385	44
40	47	7	209	218	26	386	395	45
48	56	8	219	227	27	396	404	46
57	65	9	228	236	28	405	414	47
66	73	10	237	245	29	415	423	48
74	82	11	246	255	30	424	432	49
83	91	12	256	264	31	433	442	50
92	100	13	265	273	32	443	451	51
101	109	14	274	282	33	452	461	52
110	118	15	283	292	34	462	470	53
119	126	16	293	301	35	471	480	54
127	136	17	302	310	36	481	489	55
137	145	18	311	320	37	490	499	56
146	154	19	321	329	38	500		57
155	163	20	330	338	39			
164	172	21	339	348	40			

2. When there are less than ten samples, the Department shall place a surface water or segment on the Planning List following subsection (B), if three or more temporally independent samples exceed the following surface water quality standards:

a. The surface water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 1, except for nitrate or nitrate/nitrite;

b. The surface water quality standard for temperature or the single sample maximum water quality standard for suspended sediment concentration, nitrogen, and phosphorus in R18-11-109;

c. The surface water quality standard for radiochemicals in R18-11-109(G);

d. The surface water quality standard for dissolved oxygen under R18-11-109(E);

e. The surface water quality standard for pH under R18-11-109(B); or

f. The following surface water quality standards in R18-11-112:

i. Single sample maximum standards for nitrogen and phosphorus,

ii. All metals except chromium, or

iii. Turbidity.

3. The Department shall place a surface water or segment on the Planning List if information in subsections (B)(2)(c), (B)(2)(d), and (B)(2)(e) indicates that a narrative water quality standard violation exists, but no narrative implementation procedure required under A.R.S. § 49-232(F) exists to support use of the information for listing.

D. 303(d) List.

1. When evaluating a surface water or segment for placement on the 303(d) List.

a. Consider at least 20 spatially or temporally independent samples collected over three or more temporally independent sampling events; and

b. Determine numeric water quality standards exceedances. The Department shall:

i. Place a surface water or segment on the 303(d) List, following subsection (B), if the number of exceedances of a surface water quality standard is greater than or equal to the number listed in Table 2, which provides the number of exceedances that indicate a minimum of a 10 percent exceedance frequency with a minimum of a 90 percent confidence level using a binomial distribution, for a given sample size; or

ii. *For sample datasets exceeding those shown in Table 2, calculate the number of exceedances using the following equation: (X[GREATOR THAN EQUAL TO] x| n, p) where n = number of samples; p = exceedance probability of 0.1; x = smallest number of exceedances required for listing with "n" samples; and confidence level [GREATOR THAN EQUAL TO] 90 percent.*

TABLE 2.

MINIMUM NUMBER OF SAMPLES EXCEEDING THE NUMERIC STANDARD								
Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard	Number of Samples		Number of Samples Exceeding Standard
From	To		From	To		From	To	
20	25	5	174	182	24	344	352	43
26	32	6	183	191	25	353	361	44
33	40	7	192	199	26	362	370	45
41	47	8	200	208	27	371	379	46
48	55	9	209	217	28	380	388	47
56	63	10	218	226	29	389	397	48
64	71	11	227	235	30	398	406	49
72	79	12	236	244	31	407	415	50
80	88	13	245	253	32	416	424	51
89	96	14	254	262	33	425	434	52
97	104	15	263	270	34	435	443	53
105	113	16	271	279	35	444	452	54
114	121	17	280	288	36	453	461	55
122	130	18	289	297	37	462	470	56
131	138	19	298	306	38	471	479	57
139	147	20	307	315	39	480	489	58
148	156	21	316	324	40	490	498	59
157	164	22	325	333	41	499	500	60
165	173	23	334	343	42			

2. The Department shall place a surface water or segment on the 303(d) List, following subsection (B) without the required number of samples or numeric water quality standard exceedances under subsection (D)(1), if either the following conditions occur:

a. More than one temporally independent sample in any consecutive three-year period exceeds the surface water quality standard in:

i. The acute water quality standard for a pollutant listed in 18 A.A.C. 11, Article 1, Appendix A, Table 2 and the acute water quality standards in R18-11-112;

ii. The surface water quality standard for nitrate or nitrate/nitrite in 18 A.A.C. 11, Article 1, Appendix A, Table 1; or

iii. The single sample maximum water quality standard for bacteria in subsections R18-11-109(A).

b. More than one exceedance of an annual mean, 90th percentile, aquatic and wildlife chronic water quality standard, or a bacteria 30-day geometric mean water quality standard occurs, as specified in R18-11-109, R18-11-110, R18-11-112, or 18 A.A.C. 11, Article 1, Appendix A, Table 2.

3. Narrative water quality standards exceedances. The Department shall place a surface water or segment on the Planning List if the listing requirements are met under A.R.S. § 49-232(F).

E. Removing a surface water, segment, or pollutant from the Planning List or the 303(d) List.

1. Planning List. The Department shall remove a surface water, segment, or pollutant from the Planning List when:

a. Monitoring activities indicate that:

i. There is sufficient credible data to determine that the surface water or segment is impaired under subsection (D), in which case the Department shall place the surface water or segment on the 303(d) List. This includes surface waters with an EPA approved TMDL when the Department determines that the TMDL strategy is insufficient for the surface water or segment to attain water quality standards; or

ii. There is sufficient credible data to determine that the surface water or segment is attaining all designated uses and standards.

b. All pollutants for the surface water or segment are delisted.

2. 303(d) List. The Department shall:

a. Remove a pollutant from a surface water or segment from the 303(d) List based on one or more of the following criteria:

i. The Department developed, and EPA approved, a TMDL for the pollutant;

ii. The data used for previously listing the surface water or segment under R18-11-605(D) is superseded by more recent credible and scientifically defensible data meeting the requirements of R18-11-602, showing that the surface water or segment meets the applicable numeric or narrative surface

water quality standard. When evaluating data to remove a pollutant from the 303(d) List, the monitoring entity shall collect the more recent data under similar hydrologic or climatic conditions as occurred when the samples were taken that indicated impairment, if those conditions still exist;

iii. The surface water or segment no longer meets the criteria for impairment based on a change in the applicable surface water quality standard or a designated use approved by EPA under section 303(c)(1) of the Clean Water Act;

iv. The surface water or segment no longer meets the criteria for impairment for the specific narrative water quality standard based on a change in narrative water quality standard implementation procedures;

v. A re-evaluation of the data indicate that the surface water or segment does not meet the criteria for impairment because of a deficiency in the original analysis; or

vi. Pollutant loadings from naturally occurring conditions alone are sufficient to cause a violation of applicable water quality standards;

b. Remove a surface water, segment, or pollutant from the 303(d) List, based on criteria that are no more stringent than the listing criteria under subsection (D);

c. Remove a surface water or segment from the 303(d) List if all pollutants for the surface water or segment are removed from the list;

d. Remove a surface water, segment, or pollutant, from the 303(d) List and place it on the Planning List, if:

i. The surface water, segment or pollutant was on the 1998 303(d) List and the dataset used in the original listing does not meet the credible data requirements under R18-11-602, or contains insufficient samples to meet the data requirements under subsection (D); or

ii. The monitoring data indicate that the impairment is due to pollution, but not a pollutant.

(New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).)

§ R18-11-606. Tmdl Priority Criteria for 303(d) Listed Surface Waters or Segments

A. In addition to the factors specified in A.R.S. § 49-233(C), the Department shall consider the following when prioritizing an impaired water for development of TMDLs:

1. A change in a water quality standard;

2. The date the surface water or segment was added to the 303(d) List;

3. The presence in a surface water or segment of species listed as threatened or endangered under section 4 of the Endangered Species Act;

4. The complexity of the TMDL;

5. State, federal, and tribal policies and priorities; and

6. The efficiencies of coordinating TMDL development with the Department's surface water monitoring program, the watershed monitoring rotation, or with remedial programs.

B. The Department shall prioritize an impaired surface water or segment for TMDL development based on the factors specified in A.R.S. § 49-233(C) and subsection (A) as follows:

1. Consider an impaired surface water or segment a high priority if:

a. The listed pollutant poses a substantial threat to the health and safety of humans, aquatic life, or wildlife based on:

i. The number and type of designated uses impaired;

ii. The type and extent of risk from the impairment to human health, aquatic life, or wildlife;

iii. The pollutant causing the impairment, or

iv. The severity, magnitude, and duration the surface water quality standard was exceeded;

b. A new or modified individual NPDES or AZPDES permit is sought for a new or modified discharge to the impaired water;

c. The listed surface water or segment is listed as a unique water in A.A.C. R18-11-112 or is part of an area classified as a "wilderness area, " "wild and

scenic river, " or other federal or state special protection of the water resource;

d. The listed surface water or segment contains a species listed as threatened or endangered under the federal Endangered Species Act and the presence of the pollutant in the surface water or segment is likely to jeopardize the listed species;

e. A delay in conducting the TMDL could jeopardize the Department's ability to gather sufficient credible data necessary to develop the TMDL;

f. There is significant public interest and support for the development of a TMDL;

g. The surface water or segment has important recreational and economic significance to the public; or

h. The pollutant is listed for eight years or more.

2. Consider an impaired surface water or segment a medium priority if:

a. The surface water or segment fails to meet more than one designated use;

b. The pollutant exceeds more than one surface water quality standard;

c. A surface water quality standard exceedance is correlated to seasonal conditions caused by natural events, such as storms, weather patterns, or lake turnover;

d. It will take more than two years for proposed actions in the watershed to result in the surface water attaining applicable water quality standards;

e. The type of pollutant and other factors relating to the surface water or segment make the TMDL complex; or

f. The administrative needs of the Department, including TMDL schedule commitments with EPA, permitting requirements, or basin priorities that require completion of the TMDL.

3. Consider an impaired surface water or segment a low priority if:

a. The Department has formally submitted a proposal to delist the surface water, segment, or pollutant to EPA based on R18-11-605 (E)(2). If the Department makes the submission outside the listing process cycle, the change in priority ranking will not be effective until EPA approves the submittal;

b. The Department has modified, or formally proposed for modification, the designated use or applicable surface water quality standard, resulting in an impaired water no longer being impaired, but the modification has not been approved by EPA;

c. The surface water or segment is expected to attain surface water quality standards due to any of the following:

i. Recently instituted treatment levels or best management practices in the drainage area,

ii. Discharges or activities related to the impairment have ceased, or

iii. Actions have been taken and controls are in place or scheduled for implementation that will likely to bring the surface water back into compliance;

d. The surface water or segment is ephemeral or intermittent. The Department shall re-prioritize the surface water or segment if the presence of the pollutant in the listed water poses a threat to the health and safety of humans, aquatic life, or wildlife using the water, or the pollutant is contributing to the impairment of a downstream perennial surface water or segment;

e. The pollutant poses a low ecological and human health risk;

f. Insufficient data exist to determine the source of the pollutant load;

g. The uncertainty of timely coordination with national and international entities concerning international waters;

h. Naturally occurring conditions are a major contributor to the impairment; and

i. No documentation or effective analytical tools exist to develop a TMDL for the surface water or segment with reasonable accuracy.

C. The Department will target surface waters with high priority factors in subsections (B)(1)(a) through (B)(1)(d) for initiation of TMDLs within two years following EPA approval of the 303(d) List.

D. The Department may shift priority ranking of a surface water or segment for any of the following reasons:

1. A change in federal, state, or tribal policies or priorities that affect resources to complete a TMDL;

2. Resource efficiencies for coordinating TMDL development with other monitoring activities, including the Department's ambient monitoring program that monitors watersheds on a five-year rotational basis;

3. Resource efficiencies for coordinating TMDL development with Department remedial or compliance programs;

4. New information is obtained that will revise whether the surface water or segment is a high priority based on factors in subsection (B); and

5. Reduction or increase in staff or budget involved in the TMDL development.

E. The Department may complete a TMDL initiated before July 12, 2002 for a surface water or segment that was listed as impaired on the 1998 303(d) List but does not qualify for listing under the criteria in R18-11-605, if:

1. The TMDL investigation establishes that the water quality standard is not being met and the allocation of loads is expected to bring the surface water into compliance with standards,

2. The Department estimates that more than 50 percent of the cost of completing the TMDL has been spent,

3. There is community involvement and interest in completing the TMDL, or

4. The TMDL is included within an EPA-approved state workplan initiated before July 12, 2002.

(New Section made by final rulemaking at 8 A.A.R. 3380, effective July 12, 2002 (Supp. 02-3).)